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VOL. VI.

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TRANSACTIONS

OF THE

OBSTETRICAL SOCIETY

OF

LONDON.

VOL. VI.

FOR THE YEAR 1864.

WITH A LIST OF OFFICERS, FELLOWS, ETC.

LONDON:
LONGMAN, GREEN, LONGMAN, ROBERTS, AND GREEN.
1865.

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1859 EDWARD RIGBY, M.D.
1861 WILLIAM TYLER SMITH, M.D.
1863 HENRY OLDHAM, M.D.
1865 ROBERT BARNES, M.D.

REFEREES OF PAPERS FOR THE YEAR 1865,

APPOINTED BY THE COUNCIL.

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Thomas Skinner, M.D., &c.	Liverpool.
David Lloyd Roberts, M.D., &c.	Manchester.
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W. Tyler Smith, M. D., Upper Grosvenor street.
Henry Oldham, M.D., Finsbury square.
Geo. Thompson Gream, M.D., Upper Brook street.

HONORARY FELLOWS.

BRITISH SUBJECTS.

Elected

1863 Thomas Edward Beatty, M.D., M.R.I.A., &c., late Professor of Midwifery at the Royal College of Surgeons of Ireland; Dublin.

1862 Fleetwood Churchill, M.D., Professor of Midwifery, King's and Queen's College of Physicians, Ireland; 15, Stephen's green north, Dublin.

1862 Alfred H. McClintock, M.D., late Master of the Lying-in Hospital; 21, Merrion square north, Dublin.

1862 James Matthews Duncan, M.D., A.M., Lecturer on Midwifery and Diseases of Women and Children, Surgeon's Hall; 30, Charlotte square, Edinburgh.

1862 Archibald Hall, M.D., Professor of Midwifery, University of McGill College, Montreal, Canada.

1863 John Pagan, M.D., Professor of Midwifery at the University, Glasgow.

1862 James Y. Simpson, M.D., Professor of Midwifery, University of Edinburgh, Physician-Accoucheur to the Queen in Scotland; 52, Queen street, Edinburgh.

FOREIGN SUBJECTS.

1863 Carl Braun, M.D., Professor of Midwifery, Vienna.

1862 Walter Channing, M.D., late Professor of Midwifery in the University of Cambridge, Boston, U.S.

Elected

1863 Jean Anne Henri Depaul, M.D., Paris.

1862 Baron Paul Dubois, late Professor of Clinical Midwifery in the Faculty of Medicine, Paris.

1863 F. C. Faye, Professor of Midwifery in the University of Christiania.

1864 C. Hecker, Professor at Munich.

1863 Eduard Martin, M.D., Director of the Institute for Clinical Midwifery at the University, Berlin.

1862 Charles D. Meigs, M.D., late Professor of Obstetrics, &c.. in the Jefferson Medical College, Philadelphia, U.S.

1864 Ch. Pajot, M.D., Professor at the Faculty of Medicine, Paris.

1862 F. W. von Scanzoni, M.D., Professor of Midwifery, Würzburg.

1864 J. Marion Sims, Surgeon to the Women's Hospital, New York; Paris.

1862 Rudolf Virchow, M.D., Professor of Pathological Anatomy in the University of Berlin.

ORDINARY FELLOWS.

Those marked thus (*) have paid the Composition Fee in lieu of further annual subscriptions.

Elected

1864 Aitken, William, M.D., Professor of Midwifery, &c. in the Medical College, Madras,

1859 Aldersey, William Hugh, M.B. Lond., 39, Ventnor Villas, Hove, Brighton.

1861 Aldridge, John Petty, M.D., Shirley House, Dorchester.

1859 Allen, George, M.D., 14a, Dean street, Soho, W.

1859 Amsden, George John, M.D., 1, New North road, Hoxton, N.

1859 Andrews, James, M.D., 3, The Crescent, Camden road villas, N.W.

1859 Archer, John, F.R.C.S., Surgeon to the Birmingham Lying-in Hospital; Deritend, Birmingham.

1859 Arden, Arthur Octavius, Surgeon to the Hull Lying-in Charity; 29, Nile street, Hull.

1861 Armstrong, John, M.D., Gravesend, Kent.

1860 Ashburner, James, M.D., Surgeon in Ordinary to St. Mary's Hospital, Manchester; Broad street, Pendleton, Manchester.

1863 Ashford, Edwin Charles, L.R.C.P. Ed., Scotland House, Bampton street, Tiverton, Devon.

1859 Aspinall, Thomas, Green street, Over Darwen, Lancashire.

1859 Aveling, James H., M.D., Senior Medical Officer to the Sheffield Hospital for Women; 5, Howard street, Sheffield. *Council* 1865. *Hon. Loc. Sec.*

1859 Ayling, William Henry, L.R.C.P. Ed., 103, Great Portland street, W.

Elected

1859 Baker, John Wright, 102, Friar Gate, Derby.

1864 Baker, Benson, 6, Cross street, Islington, N.

1859 Ballard, Thomas, M.D., 10, Southwick place, Hyde Park, W.

1864 Balls, Walter, M.B., B.A. Cant., 5, Tavistock place, Tavistock square, W.C.

1859 Bannister, John Henry, 436, Oxford street, W.

1863 Bannister, William, Havant, Hants.

1863 Barclay, Bruce, M.D., Shanghai.

1863 Barker, Edward, F.R.C.S., Senior Surgeon to the Melbourne Hospital, Australia.

1859 Barker, Thomas Herbert, M.D., Harpur place, Bedford. *Hon. Loc. Sec.*

1859 Barker, Samuel, M.D., St. George's House, 18, Eaton place, Brighton.

1859 Barnes, Robert, M.D., F.R.C.P., Lecturer on Midwifery at St. Thomas's Hospital; Physician to the Royal Maternity Charity, and Obstetric Physician to the London Hospital; 46, Finsbury square, E.C. *Vice-Pres.* 1859-60. *Council,* 1861-62. *Treas.* 1863-64. *Pres.* 1865.

1859 Barnett, Thos. W., 72, Fore street, Limehouse, E.

1863 Barratt, Joseph G., M.D., 22, Cleveland gardens, Bayswater, W.

1859 Barron, George B., M.D., Surgeon to the Southport Hospital; Southport, Lancashire.

1861* Bartrum, John S., Surgeon to the Bath General Hospital; 41, Gay street, Bath.

1859 Bateman, Henry, F.R.C.S., 32, Compton terrace, Upper street, Islington, N.

1859 Battye, Richard F., L.R.C.P. Ed., 6, Gloucester street, Belgrave road, Pimlico, S.W.

1859 Beck, T. Snow, M.D., F.R.S., 9a, Langham place, W.

1859 Bell, Richard Penrose, L.F.P. and S. Glasg., Goole, Yorkshire.

1861 Bennett, Francis, Surgeon to the Gateshead Dispensary; High street, Gateshead, Durham.

Elected

1859 Berry, Samuel, F.R.C.S., Surgeon-Accoucheur to the Queen's Hospital, and Professor of Midwifery and the Diseases of Women and Children in the Queen's College; 11, New Hall street, Birmingham. *Vice-Pres.* 1859. *Hon. Loc. Sec.*

1861 Best, Frederick Warningham, L.F.P. and S. Glasg. Stanningley, near Leeds.

1859 Billinghurst, Henry, M.D., 5, Church row, Islington, N.

1859 Bird, Frederic, M.D., Lecturer on Midwifery and Diseases of Women in the Westminster Hospital School of Medicine, Senior Physician to the Westminster Maternity Charity; 13, Grosvenor street, W. *Council,* 1859.

1863 Blackett, Edward Ralph, M.D., Southwold, Suffolk.

1859 Blackstone, Joseph, Park House, Gloucester road, Regent's Park, N.W.

1859 Blake, Valentine W., F.R.C.S., Surgeon to the Birmingham and Midland Counties Lying-in Hospital, Lecturer on Midwifery at the Sydenham College; 6, Old square, Birmingham.

1861* Blake, Thomas William, Hurstbourne Tarrant, Andover, Hants.

1859 Blenkinsop, Henry, F.R.C.S., Senior Surgeon to the Warwick Dispensary; Jury street, Warwick.

1860 Blood, Michael, The Terrace, St. Helier's, Jersey.

1859 Bloxam, W., M.D., 28, Duke street, Grosvenor square, W. *Council,* 1860-62.

1859 Bloxam, W., Jun., 21, Mount street, Grosvenor square, W.

1861 Blundell, Thomas Leigh, M.D., Consulting Physician to the Royal Maternity Charity of London, 12, Warrior square, St. Leonard's-on-Sea.

1859 Brace, William Henry, Surgeon to the Bath United Hospital and Lying-in Charity; 1, Gay street, Bath. *Hon. Loc. Sec.*

1862 Braithwaite, William, M.D., Lecturer on Midwifery, Leeds School of Medicine; Clarendon House, Leeds.

1862 Brickwell, John, Sawbridgeworth, Herts.

1864 Bright, John Meaburn, M.D., Forest Hill, Sydenham.

1860 Britton, William Samuel, 1, Eaton villas, Acacia road, St. John's wood, N.W.

Elected

1862 Brooke, Thomas Thorneley.

1859 Brooks, Arthur D'Oyley, Henley-on-Thames, Oxon.

1864 Brown, Alfred Gardiner, 39, William street, Woolwich.

1859 Brown, I. Baker, F.R.C.S., Senior Surgeon to the London Home for Surgical Diseases of Women; 17, Connaught square, Hyde park, W. *Council*, 1859.

1859 Brown, Richard, M.D. Adelaide Lodge, Cliftonville, Brighton.

1861 Brown, Samuel William, F.R.C.S., Lewisham, Kent, S.E.

1859 Browning, Charles, M.D., 52, Portsdown road, Maida hill, W.

1863 Bryant, Thomas, F.R.C.S., Assistant-Surgeon to Guy's Hospital; 2, Finsbury square, E.C.

1859 Bryant, Walter John, F.R.C.S., L.R.C.P.Ed., 7, Bathurst street, Hyde park gardens, W. *Council*, 1859.

1864 Buckle, Fleetwood, M.D., West Norfolk and Lynn Hospital, King's Lynn.

1861 Bunny, Joseph, M.D., Hon. Surgeon to the Newbury Dispensary; Newbury, Berks.

1859 Burford, Robert William, 31, Bayham terrace, Camden town, N.W.

1859 Burke, Patrick, 12, Upper Montagu street, Montagu square, W.

1862 Burke, Stephen John, Sydney, New South Wales.

1862 Burton, John Moulden, F.R.C.S., Lee park, Lee, Kent, S.E.

1864 Butler, Frederick John, M.D., Surgeon to the Hants County Hospital, Winchester.

1859 Buzzard, Thomas, M.D., 12, Green street, Grosvenor square, W.

1862 Campbell, Charles, M.D., Kingston, Jamaica.

1861 Candlish, Henry, M.D., The Infirmary, Alnwick, Northumberland.

1861 Candy, John, M.D., Alstonefield, near Ashbourne, Derbyshire.

1863 Carlyle, David, M.D., 2, Crescent, Carlisle.

Elected

1862 Carpenter, Robert Henry Spencer, Carr villa, Durham.

1861 Carter, Albert Pleydell, 34, London road, Gloucester.

1860 Cayzer, Thomas, Mayfield, Aigburth, Liverpool.

1864 Chambers, Thomas, Stafford House, Sutherland street, Warwick square, S.W.

1859 Chance, Edward John, F.R.C.S., Surgeon to the Metropolitan Free Hospital and City Orthopædic Hospital; 59, Old Broad street, City, E.C.

1862 Chapman, Walter, F.R.C.S., Lower Tooting, Surrey.

1863 Chavasse, Pye Henry, F.R.C.S., 12, The Square, Birmingham.

1863 Chisholm, Edwin, 46, Margaret street, Wynyard square, Sidney.

1859 Cholmondeley, Joseph, Surgeon-Accoucheur to Queen Charlotte's Lying-in Hospital; 3, Nottingham place, Marylebone road, W. *Council*, 1859-60-61.

1859 Chowne, William Dingle, M.D, Physician to, and Lecturer on the Principles and Practice of Medicine and Obstetrics at, Charing Cross Hospital; 8 Connaught place west, Hyde park, W. *Council*, 1860-62.

1861 Church, William John, F.R.C.S., 22, Circus, Bath.

1859 Claremont, Claude Clarke, 15, Harrington square, N.W.

1859 Clark, James Fenn, 18, York terrace, Leamington. *Hon. Loc. Sec.*

1861 Clark, James, M.D., 3, St. Mark's square, Regent's park, N.W.

1862 Clarke, John, Lynton, North Devon.

1859 Clay, Charles, M.D., late Medical Officer in Ordinary and Lecturer on Midwifery and Clinical Medicine in St. Mary's Hospital; 101, Piccadilly, Manchester. *Council*, 1863-5.

1859 Clay, John, Surgeon-Accoucheur to the Queen's Hospital; 95, Newhall street, Birmingham.

1859 Clayton, Oscar, F.R.C.S., 87, Harley street, W.

1859 Cleveland, William Frederick, M.D., 24, Carlton villas, Maida vale, W. *Council*, 1863-4.

Elected

1861 Clogg, Stephen, East Looe, Cornwall.

1860 Cockell, Edgar, Holly Lodge, Queen's road, Dalston, N.E.

1859 Cockell, Frederick Edgar, 1, Alma villas, Dalston, N.E.

1861 Cocker, John, M.D., Bank Hey, Blackpool, near Preston, Lancashire.

1861 Cogan, Joseph, M.D., Wheatley, Oxon.

1859 Collenette, Benjamin, L.R.C.P. Ed., Surgeon to the Guernsey Hospital ; Plaiderie place, Guernsey.

1861 Collingwood, William, Ampthill, Beds.

1859 Collins, Chambers, F.R.C.S., Maryport, Cumberland.

1861 Collinson, Alfred, M.D., 19, Oxford terrace, Hyde park, W.

1859 Collum, Robert, M.D., Physician to the Western General Dispensary ; 1, Chester place, Hyde park square, W.

1864 Cooper, George Henry C., 181, Holloway road, N.

1861 Cooper, John, L.R.C.P. Ed., Clapham Rise, S.

1860 Corry, Thomas Charles Steuart, M.D., L.R.C.P. Ed., Surgeon to the Belfast General Dispensary ; 9, Clarendon place, Belfast. *Hon. Loc. Sec.*

1859 Cory, Frederic Charles, M.D., 8, Nassau place, Commercial road east, E.

1862 Cotterell, Peter Ambrose, M.D., West Bromwich, Staffordshire.

1863 Coward, John W., Christchurch, Canterbury, New Zealand.

1859 Croft, J. McGregor A. T., M.D., late Senior Surgeon to H.M. Ceylon Rifles ; 8, Abbey road, St. John's Wood, N.W.

1861 Croskery, Hugh, L.R.C.S. Ireland ; Chapelton, Jamaica.

1860 Cross, Richard, M.D., Queen street, Scarborough, Yorkshire.

1859 Culpeper, William Moe, 1, Brunswick terrace, Palace gardens, Kensington, W.

1862 Cumberbatch, Laurence Trent, 25, Cadogan place, Belgrave square, S.W.

1859 Curgenven, J. Brendon, 11, Craven Hill gardens, Bayswater, W.

1859 Davies, John, M.D., Coleshill, Warwickshire.

Elected

1859 Davis, John Hall, M.D., Physician-Accoucheur to the Middlesex Hospital; Physician to the Royal Maternity Charity; Consulting Physician to the St. Pancras Infirmary; 11, Harley street, Cavendish square, W. *Council*, 1859, 1864-5. *Vice-Pres.* 1861-63.

1863 Davis, Robert Alex., L.R.C.P., Edinb. (exam.), County Asylum, Burntwood, near Lichfield, Stafford.

1863 Day, Edwin Edmund, M.B., Assistant Physician for Diseases of Women and Children to King's College Hospital, 48, Hertford street, Mayfair, W.

1859 Day, William Henry, M.D., 3, Park terrace, Newmarket.

1861 De la Motte, Henry D. C., Swanage, Dorset.

1859 Denny, John, 1, Sumner terrace, Onslow square, Brompton, S.W.

1864 Des Forges, Edward, South Cave, near Brough, Yorkshire.

1860 Dickinson, John, F.R.C.S., Surgeon to the Wrexham Infirmary; Wrexham, Denbighshire.

1859 Dickson, Joseph, M.D., 56, Bath street, Jersey.

1859 Diplock, Thomas Bramah, M.D., Dudley House, Upper Cheyne row, Chelsea, S.W.

1859 Dixon, John, M.D., 20, Prospect row, Bermondsey, S.E.

1859 Dixon, Thomas G., M.D., Northwich, Cheshire.

1859 Dixon, William, L.R.C.P. Edin., Tickhill, Yorkshire.

1861 Down, Henry Wilcox, Glastonbury, Somerset.

1859 Drage, Charles, M.D., Hatfield, Herts. *Council*, 1861-64.

1859 Druitt, Robert, M.R.C.P., Medical Officer of Health for St. George's, Hanover square; 37, Hertford street, Mayfair, W. *Council*, 1859-60. *Vice-Pres.* 1862-64.

1859 Druitt, William, F.R.C.S., Wimborne, Dorset.

1859 Dufty, Fred., Stoney Stratford, Bucks.

1859 Duncan, James, M.B., 8, Henrietta street, Covent garden, W.C.

1859 Duncan, Peter Charles, M.D., 46, Great Marlborough street, W.

1862 Dunn, Joseph Thos. Holt, L.R.C.P. Edin. (exam.), 7, Carlton place, Westbourne park, W.

1859 Dunn, Robert, F.R.C.S., 31, Norfolk street, Strand, W.C. *Council*, 1860. *Vice-Pres.* 1861-2.

Elected

1861 Earle, James Lumley, M.D., Obstetric Surgeon to the Queen's Hospital; 92, New Hall street, Birmingham.

1859* Easson, James, 23, Princes street, Cavendish square, W.

1861 Eastlake, Henry E., M.D., Medical Officer to the British Lying-in Hospital, and Accoucheur to the St. Marylebone General Dispensary; 48, Welbeck street, W.

1861 Edwards, Thomas Edwin, L.R.C.P. Lond., 98, Gloucester crescent, Hyde park, W.

1859 Elkington, Francis, M.D., Consulting Accoucheur to the Birmingham and Midland Counties Lying-in Hospital, and Lecturer on Midwifery at Sydenham College; 92, New Hall street, Birmingham. *Council*, 1859. *Vice-Pres.* 1860-61.

1862 Ellam, John, L.R.C.P., Sneinton place, Nottingham.

1859 Elliott, Robert, F.R.C.S., Edin., Senior Surgeon to the Chichester Infirmary; North street, Chichester.

1862 Ellis, Edward, M.D., Medical Officer to the Royal Pimlico Dispensary and Lying-in Charity, 117, Warwick street, Belgravia, S.W.

1861 Ellis, Robert, Obstetric Surgeon to the Chelsea, Brompton, and Belgrave Dispensary; 63, Sloane street, S.W.

1862 Ellison, James, M.D., 14, High street, Windsor, Berks.

1859 Evans, Griffith Francis Dorsett, M.D., Trewern Lodge, 43, Addison road, Kensington, W.

1861 Ewen, Henry, F.R.C.S., Long Sutton, Lincolnshire.

1859 Faircloth, Richard, F.R.C.S., Newmarket, Cambridgeshire

1861 Farr, Geo. F., L.R.C.P. Edin., 171, Union street, Southwark, S.E.

1859 Fergusson, William, F.R.C.S., F.R.S., Surgeon Extraordinary to H.M. the Queen, Professor of Surgery in King's College and Surgeon to King's College Hospital, Consulting Surgeon to the Samaritan Free Hospital; 16, George street, Hanover square, W. *Vice-Pres.* 1862-3.

1861 Fetherston, Gerald H., B.A., M.D. Melb., L.R.C.P. Edin., Resident Accoucheur, Melbourne Lying-in Hospital, Australia. *Hon. Loc. Sec.*

1859 Fisher, Alder, New Zealand.

1860 Fox, W. Tilbury, M.D., 15, Old Cavendish street, Cavendish square.

Elected

1862 Frain, Joseph, M.D., Senior Surgeon to the South Shields Dispensary, Frederick street, South Shields.

1862 Frampton, Decimus Nelson, L.R.C.P. Edin., 4, Eaton square, S.W.

1861 Frankland, Thomas Thrush, Ripon, Yorkshire.

1861 Freeman, Henry Lankester, Saxmundham, Suffolk.

1861 French, William John Blake, Carey street.

1864 Fussell, Edward Francis, M.B., 31, Queen's road, Brighton.

1863 Galton, John Henry, M.B. Lond., Brixton Rise, S.

1860 Garland, Edward Charles, Silver street, Yeovil, Somerset.

1863 Garman, Henry Vincent, 1, Coborn terrace, Bow road, E.

1859 Garty, Francis Boyle, Loughborough road, North Brixton, S.

1859 Gaskoin, George, 3, Westbourne park, W.

1864 Gaunt, John Smith, Alvechurch, Worcestershire.

1862 Gayton, William, 85, Brick lane, Spitalfields, N.E.

1859 Gervis, Henry, M.D., Assistant Obstetric Physician to St. Thomas's Hospital; 12, St. Thomas's street, Southwark, S.E. *Council*, 1864-5.

1864 Gilbee, William, 113, Collins street East, Melbourne, Victoria.

1860 Gill, Samuel L., M.D., L.R.C.P. Edin., 4, Campbell terrace, Bow road, E.

1859 Goddard, Samuel Palmer, M.D., Longton, Staffordshire Potteries.

1861 Goss, Samuel Day, M.D. St. And., F.R.G.S., 24, Newington place, Kennington park, S.

1859 Gould, Henry Merton, Wateringbury, Kent.

1859 Goulstone, John G., M.D., Bellevue, Shrewsbury.

1864 Granville, Joseph Mortimer, L.R.C.P., Obstetrical Surgeon to the Bristol Dispensary; Surrey House, St. Paul's, Bristol.

1861 Gream, George Thompson, M.D., Physician-Accoucheur to H.R.H. the Princess of Wales; 2, Upper Brook street, Grosvenor square, W. *Council*, 1862-63. *Vice-Pres.* 1864-65.

Elected

1859 Greenhalgh, Robert, M.D., Physician-Accoucheur and Lecturer on Midwifery to St. Bartholomew's Hospital, and Physician-Accoucheur to the Samaritan Free Hospital; 76, Grosvenor street, W. *Council*, 1863. *Vice-Pres.* 1864-65.

1863 Griffith, G. de Gorrequer, M.D., 9, Lupus street, St. George's square, S.W.

1859 Griffith, Thomas Taylor, F.R.C.S., Consulting Surgeon to the Wrexham Infirmary; Wrexham, Denbighshire.

1859 Grimsdale, Thos. F., Surgeon to the Lying-in Hospital, and Lecturer on Diseases of Children at the Royal Infirmary School of Medicine; 29, Rodney street, Liverpool. *Council*, 1861-62.

1859 Guest, Edmund, F.R.C.S., L.R.C.P. Edin.; 20, Halsey street, Chelsea, S.W.

1859 Gunn, Theophilus Miller, F.R.C.S., 40, York place, Baker street, W.

1859 Haden, Francis Seymour, F.R.C.S., Hon. Surgeon to the Government School of Science and Art; 62, Sloane street, S.W. *Council*, 1861-63. *Vice-Pres.* 1865.

1863 Hailey, Hammett, The Elms, Newport Pagnell.

1859 Hall, Alfred, M.D., Senior Physician to the Brighton Dispensary; 30, Old Steyne, Brighton. *Council*, 1864-65. *Hon. Loc. Sec.*

1859 Hall, Frederick, 1, Jermyn street, St. James's, S.W.

1862 Hall, William, Lecturer on Botany, Leeds School of Medicine; North street, Leeds.

1860 Hardey, Key, Surgeon to the West City Dispensary; 4, Wardrobe place, Doctors' Commons, E.C.

1859 Hardey, Robert, late Lecturer on Obstetrics, Hull and East Riding School of Medicine; 13, Charlotte street, Hull. *Council*, 1860-62. *Vice-Pres.* 1863-65. *Hon. Loc. Sec.*

1859 Harley, George, M.D., Professor of Medical Jurisprudence, University College, and Assistant-Physician to University College Hospital; 77, Harley street, Cavendish square, W. *Council*, 1861-63.

1859 Harper, Philip H., F.R.C.S., Assistant-Surgeon to the London Home for Surgical Diseases of Women; 30, Cambridge street, Hyde park, W.

Elected

1863 Harries, Gwynne, M.B. Lond., Pembroke Dock, South Wales.

1859 Harrinson, Isaac, F.R.C.S., Castle street, Reading, Berks. *Council*, 1862-65. *Hon. Loc. Sec.*

1859 Harris, Abraham, L.R.C.P. Edin., Commercial square, Camborne, Cornwall.

1862 Harris, Charles, M.D., Northiam, Sussex.

1861 Harris, Herbert Robey, Union square, Bury, Lancashire.

1861 Harris, William John, 13, Marine Parade, Worthing.

1864 Harrison, Samuel Norton, Patrington, Holderness, Yorkshire.

1864 Hartley, —, M.R.C.S.

1864 Hasenfeld, Emmanuel, M.D., Pesth, Hungary.

1859 Harvey, William, 48, Lonsdale square, Islington, N.

1861 Haviland, Edward Savage, M.D., 13, Lyon terrace, Maida Hill, W.

1859 Hawthorne, Arthur Neville, F.R.C.S., Eccleshall, Staffordshire.

1862 Hayman, Charles Christopher, M.D., Eastbourne, Sussex,

1864 Head, Edward, M.B., 44, Harley street, W.

1860 Hess, Augustus, M.D., Physician to the Jews' Hospital, Mile End; 14, Artillery place, City road, Finsbury square, E.C.

1859 Hewitt, Graily, M.D., Physician to the British Lying-in Hospital, Assistant Physician-Accoucheur, and Lecturer on Midwifery and Diseases of Women and Children at St. Mary's Hospital Medical School; 36, Berkeley square, W. *Hon. Sec.* 1859-64. *Treas.* 1865.

1862 Hewitt, Tom Smith, M.D., Ivy Cottage, Winkfield, Windsor, Berks.

1863 Hibberd, Edward, M.D., 67, Union street, Southwark, S.E.

1860 Hicks, John Braxton, M.D., F.R.S. Assistant Physician-Accoucheur to Guy's Hospital; Physician to the Royal Infirmary for Diseases of Children and Women, Waterloo road; 9, St. Thomas's street, Southwark, S.E. *Council*, 1861-62. *Hon. Sec.* 1863-65.

1860 Higgs, Thomas Frederic, L.R.C.P. Edin.; Wolverhampton street, Dudley, Worcestershire.

Elected

1859 Hird, Francis, F.R.C.S., formerly Surgeon to the Royal Infirmary for Children, Surgeon to Charing Cross Hospital; 13, Old Burlington Street, W. *Council*, 1861-62.

1859 Hodges, Richard, M.D., 72 Warwick square, Belgravia, S.W.

1859 Hodgson, George Frederick, 52, Montpellier road, Brighton.

1864 Hoffmeister, William Carter, M.D., Surgeon to the Queen in the Isle of Wight; Cowes, Isle of Wight.

1859 Holman, Andrew, 10, John street, America square, E.C.

1859 Holman, Constantine, M.D., Reigate, Surrey.

1860 Holman, Henry Martin, M.D., Hurstpierpoint, Sussex.

1864 Hood, Wharton Peter, M.D., 15, Lower Seymour street, W.

1861 Horton, George Edward, Dudley, Worcestershire.

1864 Houghton, Henry George, M.D., 6, Mount street, Grosvenor square.

1862 Hubert, William Arthur, Markgate street, Bedfordshire.

1859 Hussey, Edward Law, F.R.C.S., Surgeon to the Radcliffe Infirmary; 104, St. Aldate's, Oxford.

1859 Hutchinson, Jonathan, Assistant-Surgeon to the London Hospital; 4, Finsbury circus, E.C.

1861 Hutton, Charles, M.D., Physician to the General Lying-in Hospital; 26, Lowndes street, Belgrave square, S.W.

1859 Ilott, James William, Bromley, Kent.

1859 Image, William Edmund, F.R.C.S., Senior Surgeon to the Suffolk General Hospital; Bury St. Edmunds, Suffolk.

1859 Irwin, William Crossley, M.D., Belvoir street, Leicester.

1864 Jackson, Edward, M.B., Fern Bank, Glossop road, Sheffield.

1859 Jackson, Henry, M.D., Newcastle, New South Wales, Australia.

1864 Jackson, Robert, M.D., 53, Notting Hill square, W.

1861 Jackson, Thomas Hayes, M.D., 18, Market place, Darlington, Durham.

1859 James, Henry, F.R.C.S., 2, Bryanston street, Portman square. *Council*, 1862-63.

Elected

1862 Jay, Frederick Fitzherbert, L.R.C.P., Hoe Lodge, East Dereham, Norfolk.

1863 Jenkins, Robert W., 22, Philpot lane, E.C.

1859 Jennings, Joseph C. S., Abbey House, Malmesbury, Wilts.

1860 Jepson, Henry, F.R.C.S., Surgeon to the Kingston Dispensary; Hampton, Middlesex, S.W.

1862 Johnson, Edward, M.D., 19, Cavendish place, Cavendish square, W.

1863 Johnson, Henry Scholfield, M.D., Congleton, Cheshire.

1861 Jones, Edward, M.D., The Park, Sydenham, Kent.

1859 Jones, George, 12, New Hall street, Birmingham.

1859 Jones, John William, 8, Brynteg terrace, Upper Bangor, Caernarvonshire.

1859 Kealy, John Robert, M.D., Ashley House, Gosport, Hants, *Hon. Loc. Sec.*

1859 Keele, George Thomas, 1, Bruce villas, 81, St. Paul's road, Highbury, N.

1859 Kendall, Thomas Marsters, F.R.C.S., Medical attendant to their R.H. the Prince and Princess of Wales, at Sandringham, Surgeon to the West Norfolk and Lynn Hospital; King's Lynn, Norfolk.

1861 Kerbey, William Holman, Huyton, Prescot, Lancashire.

1859 Kiallmark, Henry Walter, 46, Princes square, Westbourne grove, W.

1860 Kingsford, Edward, F.R.C.S., Surgeon to the Sunbury Dispensary; Sunbury, Middlesex, S.W.

1862 Kirkpatrick, John Rutherford, M.B., T.C.D., Lying-in Hospital, Rutland square, Dublin.

1860 Kisch, Joseph, 2, Circus place, Finsbury circus, E.C.

1862 Lamb, John Stewart, M.D., 4, Windsor terrace, Maida vale, W.

1859 Langmore, J. Charles, M.B., F.R.C.S., 48, Sussex gardens, W. *Council*, 1861-64.

1862 Lanphier, Richard, M.B. Dub., Alford, Lincolnshire.

1859 Lee, Newton B. C., 11, Talbot terrace, Talbot Road, Bays water, W.

1859 Leech, Edward, Pallant, Chichester, Sussex.

1864 Leeson, Joseph Frederick, M.D., Bentinck place, Bradford, Yorkshire.

Elected

1860 Leishman, William, M.D., Physician to the Glasgow Royal Infirmary, to the University Lying-in Hospital, and to the Dispensary for Diseases of Women and Children; 7, Blythswood square, Glasgow.

1859 Locock, Sir Chas., Bart., M.D., First Physician-Accoucheur to H.M. the Queen; 26, Hertford street, Mayfair, W. *Honorary President.*

1859 Lombe, Thomas Robert, M.D., Coltishall, Norfolk.

1861 Love, Gilbert, Wimbledon, Surrey, S.W.

1862 Lowe, George, Burton-on-Trent, Staffordshire.

1860 Lowe, John, M.D., Surgeon to the West Norfolk and Lynn Hospital; King street, King's Lynn, Norfolk.

1862 Mackenzie, George Wise, Thetford, Norfolk.

1859 Mackinder, Draper, M.D., Consulting Surgeon to the Gainsborough Dispensary; Gainsborough, Lincolnshire.

1859 Mackinlay, John, M.D., Isleworth, Middlesex.

1859 Maclaren, Alexander C., 29, Harley street, W.

1859 Macrae, John, 4, High street, Lewes, Sussex.

1861 McVeagh, Denis, L.K. and Q.C.P. Ireland; 33, Bishop street, Coventry, Warwickshire.

1859 Madge, Henry, M.D., 32, Fitzroy square, W. *Council*, 1863-65.

1860 Marley, Henry Frederick, Padstow, Cornwall.

1859 Marley, Richard, Bromyard, Herefordshire.

1862 Marriott, Robert Buchanan, Swaffham, Norfolk.

1860 Marshall, Jas., M.D., Berryhill, Stonehaven, Kincardine.

1862 Marshall, John, 27a, Aldenham street, St. Pancras, N.W.

1859 Marshall, John Brake, 15, Cambridge street, Lower road, Islington, N.

1859 Marshall, Peter, 42, Bedford square, W.C.

1860 Martin, Henry Victor, F.R.C.S., Staines, Middlesex.

1864 Martin, Laurence J., M.D., 126, Collins street east, Melbourne.

1859 Martyn, William, M.D., F.R.C.S., 6, Trevor terrace, Rutland gate, Brompton, S.W.

1861 Matthews, John, M.D., 4, Mylne street, Myddelton square, E.C.

Elected

1859 Meadows, Alfred, M.D., Physician-Accoucheur for the out-patients to the General Lying-in Hospital, York road; Physician-Accoucheur to the St. George's and St. James's Dispensary; 27, George street, Hanover square, W. *Council*, 1862-64. *Hon. Secretary and Librarian*, 1865.

1859 Merriman, Samuel William John, M.D., Consulting Physician-Accoucheur to the Westminster General Dispensary, and Physician-Accoucheur to the Western General Dispensary; 3, Charles street, Westbourne terrace. *Council*, 1859-60.

1861 Middleton, William, F.R.C.S., 25, Lansdowne place, Leamington, Warwickshire.

1859 Miles, Charles, 13, Conduit street west, Westbourne terrace, W.

1859 Mitchell, Joseph Thomas, F.R.C.S., 8, Percy place, Clapham road, S. *Council*, 1863-65.

1859 Moorhead, John, M.D., Surgeon to the Weymouth Infirmary and Dispensary, Weymouth, Dorset.

1863 Morgan, Edward, Llanelly, Caermarthenshire.

1859 Moyles, Thos., M.D., 109, Broad street, Birmingham.

1863 Murphy, William, M.D., Peitermaritzburg, South Africa.

1859 Murphy, Edward William, M.D., Professor of Midwifery in University College, and Obstetric Physician, University College Hospital, Physician-Accoucheur to the Northern Dispensary; 41, Cumberland street, Bryanston square, W. *Vice-Pres.* 1859-60.

1859 Murray, Gustavus Charles P., M.D., Physician-Accoucheur to the Great Northern Hospital, Medical Officer to the British Lying-in Hospital, Physician for Diseases of Women and Children to the St. George's and St. James's Dispensary; 17, Green street, Grosvenor square, W. *Council*, 1864-65.

1859 Musgrave, Johnson Thomas, Pembroke place, Finchley road, N.W. *Council*, 1859-60.

1859 Napper, Albert, Broad Oak, Cranley, Guildford, Surrey.

1863 Nason, John James, M.B. Lond., Bridge street, Stratford-on-Avon.

Elected

1859 Nason, Richard Bird, Nuneaton, Warwickshire.

1859 Neal, James, 85, New Hall street, Birmingham.

1859 Newman, William, M.D., Stamford, Lincolnshire.

1859 Newton, Edward, F.R.C.S., 30, Fitzroy square, W. *Council*, 1865.

1859 Nicholson, William Hunter, 58, Ossulston street, Somers Town, N.W.

1861 Nichols, George W., Almond Tree House, Rotherhithe, S.E.

1859 Nunn, Thomas William, Assistant-Surgeon to the Middlesex Hospital; 8, Stratford place, Oxford street, W.

1860 Oakshott, John, Highgate, N.

1859 O'Flaherty, Thomas Austin, M.D., 2, Baker street, Portman square, W.

1859 Oldham, James, Norfolk square, Brighton.

1859 Oldham, Henry, M.D., F.R.C.P., Obstetric Physician and Lecturer on Midwifery and Diseases of Women and Children at Guy's Hospital; 26, Finsbury square, E.C. *Vice-Pres.* 1859. *Council*, 1860, 1865. *Treas.* 1861-62. *Pres.* 1863-64.

1859 Orford, William Cockerell, 211, High street, Deritend, Birmingham.

1863 Oswald, James Waddell Jeffries, Rochford, Essex.

1863 Owen, Albert Philip, Margate, Kent.

1861 Owen, William B., 61, Cleveland square, Hyde park, W.

1859 Palfrey, James, M.D., Senior Assistant-Physician to the Metropolitan Free Hospital, and Physician to the Surrey Dispensary; 12, Wellington street, Southwark, S.E.

1861 Palmer, Silas, M.D., London road, Newbury, Berks.

1862 Parker, Theophilus Rt. Bush, The Vicarage, Abbotsbury, Dorset.

1863 Parson, Edward, M.B. Lond., 3, York street, Portman square, W.

1860 Payne, Charles Henry, M.D., Wimbledon, Surrey, S.W.

1860 Pearse, George, L.R.C.P. Edin., 10, Regent street, Westminster, S.W.

1864 Pearson, David Ritchie, M.D., 23, Upper Phillimore place, Kensington, W.

1859 Peirce, R. King, 16, Norland place, Notting hill, W.

Elected

1864 Phillips, Howell Charles, M.D., 14, Colville square, Kensington park, W.

1859 Pinchard, Benjamin, M.D., Cottenham, Cambridgeshire.

1864 Playfair, William, M.D., 5, Curzon street, May Fair, W.

1860* Plowman, Wm. T., M.D., H. Hardstaffe's, Esq., Hache Court, near Taunton.

1859 Pollard, William, Jun., Surgeon to the Torbay Infirmary and Dispensary, Torquay, Devon.

1860 Pollock, Timothy, M.D., 26, Hatton garden, E.C.

1860 Porter, Charles, 54, Digbeth, Birmingham.

1859 Potter, Jephson, M.D., 109, Upper Parliament street, Liverpool.

1864 Potter, John Baptiste, M.D., 3, Craven hill, Hyde park, W.

1859 Pound, George, Odiham, Hants.

1863 Powell, Josiah T., M.D., 325, City road, E.C.

1864 Powell, Llewellyn, Christchurch, Canterbury, New Zealand.

1859 Prance, Robert Rooke, M.D., Heath street, Hampstead, N.W.

1864 Price, William Nicholson, Lecturer on Midwifery at the Leeds School of Medicine; 7, East parade, Leeds.

1863 Price, William Preston, M.D., Surgeon to the Metropolitan Infirmary for Scrofulous Children, Margate.

1859 Priestley, W. O., M.D., Professor of Midwifery in King's College, London, and Physician-Accoucheur to King's College Hospital, and Consulting Physician-Accoucheur to the St. Marylebone Infirmary; 17, Hertford street, Mayfair, W. *Council*, 1859-61, 1865.

1862 Prince, Frederick, Sawston, Cambridgeshire.

1859 Pritchard, Edward William, M.D., 131, Sauchiehall street, Glasgow. *Hon. Loc. Sec.*

1864 Pugh, William Russ, M.D., 131, Collins street East, Melbourne.

1864 Quarrell, William, Sidbury, Worcester.

1859 Radford, Thomas, M.D., Consulting Physician to St. Mary's Hospital, Manchester; Moor field, Higher Broughton, Manchester. *Vice-Pres.* 1859.

Elected

1859 Ramsay, John Allen, L.R.C.P. Ed., Great Shelford, Cambridge.

1860 Ramsbotham, John Hodgson, M.D., 16, Park place, Leeds.

1859 Randall, John, M.D. Lond., Lecturer on Medical Jurisprudence, St. Mary's Hospital Medical School; Medical Officer, St. Marylebone Infirmary; 14, Portman street, Portman square, W.

1860 Ransom, Robert, F.R.C.S., 5, Jesus lane, Cambridge.

1861 Rasch, Adolphus A. F., M.D., Hon. Phys. to the Eastern Dispensary of the German Hospital; 7, South street, Finsbury square, E.C.

1859 Ray, Edward, F.R.C.S., Dulwich, Surrey, S. *Council*, 1864.

1860* Rayner, John, 19, Kingsland crescent, Kingsland road, N.E.

1859 Raynes, Henry, Gringley-on-the-hill, Bawtry, Yorkshire.

1859 Ree, Henry Pawle, L.R.C.P. Ed., Walham green, Fulham, S.W.

1859 Remington, Thomas, Medical Officer to the Clapham General Dispensary; 1, Grove place, North Brixton, S.

1860 Renton, John, Shotley bridge, Gateshead, Durham.

1860 Richard, Edward Williams, Prospect House, Finchingfield, Essex.

1862 Richards, David, 8, St. George's place, Brighton, Sussex.

1860 Richards, John Smith Crosland, 36, Bedford square, W.C.

1859 Richards, Samuel, M.D., 36, Bedford square, W.C. *Council*, 1864-65.

1862 Richards, Smith, 36, Bedford square.

1859 Richardson, Richard, L.R.C.P. Edinb., Rhayader, Radnorshire.

1859 Richardson, William Thomas, Ivy House, Highgate, N.

1864 Ritchie, Charles G., M.D., 36, Mount street, Grosvenor square, W.

1859 Roberts, David Lloyd, M.D., Surgeon to St. Mary's Hospital, Manchester; 23, St. John's street, Deansgate, Manchester. *Hon. Loc. Sec.*

1860 Roberts, Robert Price, Rhyl, Flintshire.

1860 Robins, George, L.R.C.P. Ed., 45, Charlotte street, Fitzroy square, W.

Elected

1859 Robinson, Thomas, M.D., 64, Lamb's Conduit street, W.C.

1860 Roe, William Hamilton, M.B., M.R.C.P., 10, Clarence square, Brighton.

1859 Rogers, William Richard, M.D., Physician to the Samaritan Free Hospital; 56, Berners street, Oxford street, W.

1859 Roots, William Sudlow, F.R.C.S., F.L.S., Surgeon to the Royal Establishment at Hampton Court, Kingston-on-Thames, S.W.

1860 Roper, Alfred George, 112, High Street, Croydon, Surrey.

1859 Rose, Henry Cooper, M.D., High street, Hampstead, N.W.

1859 Ross, Daniel, Surgeon to the Metropolitan Police; 10, Commercial place, Commercial road east, E.

1859 Ross, George, M.D., Surgeon to the Western City Dispensary; 11, Hart street, Bloomsbury, W.C.

1859 Routh, Charles Henry Felix, M.D., Physician to the Samaritan Free Hospital for Women and Children; 52, Montagu square, W. *Council*, 1859-60-61.

1863 Rowland, John, M.D., Garth, Lampeter, Cardiganshire.

1863 Rushforth, Joseph, 83, Oxford terrace, W.

1861 Russell, William Alexander, L.R.C.P. Edin.; St. Peter street, St. Alban's, Herts.

1864 Salter, J. H., Darcy House, Tolleshunt Darcy, Kelvedon, Essex.

1860 Sanders, Godfrey, F.R.C.S., 17, Brewer street, Maidstone, Kent.

1862 Sankey, William, Extra L.R.C.P., 6, Upper Portland place, Wandsworth, S.W.

1862 Sarell, Richard. M.D., Constantinople.

1860 Saunders, Charles, Foulsham, Norfolk.

1863 Savage, Henry, M.D. Lond., Physician to the Samaritan Hospital for Women; Edwards street, Portman square, W.

1859 Scott, John, F.R.C.S., Surgeon to the Hospital for Women, Soho square; 65, Harley street, Cavendish square, W.

1860 Sedgwick, Leonard William, M.D., 11, Hinde street, Manchester square, W.

Elected

1863 Sequeira, Henry Little, 1, Jewry street, Aldgate, E.C.

1860 Sewell, Charles Brodie, M.D., 76, Guildford street, Russell square, W.C.

1862 Sharman, Malim, 18, New Hall street, Birmingham.

1859 Sharpin, Henry Wilson, F.R.C.S., Surgeon to the Bedford General Infirmary, Bedford.

1860 Shaw, George, Portland House, Battersea, S.W.

1859 Shaw, James, L.R.C.P., Edin., 52, York street, Cheetham, Manchester.

1859 Shearman, Edward James, M.D., Rotherham, Yorkshire.

1859 Sheehy, William Henry, L.R.C.P., Edin., 4, Claremont square, Pentonville, N.

1862 Shillingford, Isaac Shortland, 1, Hill street, Peckham, S.E.

1859 Shipton, William Parker, Surgeon to the Buxton Bath Charity ; Buxton, Derbyshire.

1860 Shirley, Henry James, Earl Soham, Wickham market. Suffolk.

1861 Shortt, John, M.D., Assistant-Surgeon H.M.I. Army, Chingleput, Madras District.

1861 Sisson, Andrew, Reigate, Surrey.

1860 Skinner, Thomas, M.D., 1, St. James's road, Liverpool. *Council*, 1865. *Hon. Loc. Sec.*

1859 Sleeman, Philip Rowling, F.R.C.S., 16, Buckingham place, Clifton.

1861 Sloman, Samuel George, Farnham, Surrey.

1861 Slyman, William Daniel, 18, Warden road, Kentish town, N.W.

1860 Smart, Thomas Tovey, L.R.C.P. Edinb., South villa, Bedminster, Bristol.

1859 Smiles, William, M.D., Physician to the Royal General Dispensary, St. Pancras ; 43, Bedford square, W.C.

1860 Smith, Charles Case, F.R.C.S., Consulting Surgeon to the Suffolk General Hospital ; Bury St. Edmund's, Suffolk.

1862 Smith, Henry, M.D., 8, St. Mary's terrace, Paddington, W.

1862 Smith, Josiah Sidney, Tiverton, Devon.

1860 Smith, John, Coseley, near Bilston, Staffordshire.

1860 Smith, Joseph Evans, Oxford road, Hay, Breconshire.

Elected

1859 Smith, Protheroe, M.D., Physician to the Hospital for Women, Soho square; 25, Park street, Grosvenor square, W.

1859 Smith, Samuel, F.R.C.S., Senior Surgeon to the Leeds General Infirmary; Park place, Leeds. *Council*, 1860-2. *Hon. Loc. Sec.*

1859 Smith, William, M.D., Consulting Physician to the Weymouth Infirmary and Dispensary; Weymouth, Dorset.

1859 Smith, W. Tyler, M.D., F.R.C.P., Physician-Accoucheur and Lecturer on Midwifery and Diseases of Women and Children to St. Mary's Hospital; 21, Upper Grosvenor street, W. *Treasurer & Vice-Pres.* 1859-60. *Pres.* 1861-62. *Council*, 1863-65.

1860 Snell, Edmund, 20, Stepney green, E.

1860 Snow, John Elliot, Walton, near Ipswich.

1859 Somerville, Charles, M.D., Bloxwich, Walsall, Staffordshire.

1859 Spencer, George, 1, Horbury terrace, Notting hill, W.

1860 Spencer, Lawrence, M.D., 9, Winckley square, Preston, Lancashire.

1862 Spry, George Frederick, M.D., Staff Assistant-Surgeon, Fort Gomer, Alverstoke, Hants.

1859 Squire, William, 6, Orchard street, Portman square, W.

1859 Stanton, John, M.D., 9, Montagu square, W.

1860 Stedman, Robert Savignac, Sharnbrook, Bedfordshire.

1860 Stephens, Joseph, M.D., 5, Pavilion parade, Brighton.

1859 Stone, Joseph, M.D., 84, Bloomsbury, Oxford street, Manchester.

1860 Stone, Thomas, F.R.C.S., Resident Surgeon to Christ's Hospital.

1859 Stowers, Nowell, 30, Newington place, Kennington, S.

1859 Stutter, Frederick Augustus, Farnboro' House, Upper Sydenham, Kent.

1860 Sumpter, Walter, M.D., Clay-next-the-sea, Norfolk.

1862 Sutherland, William, M.D., 22, George street, Croydon, Surrey.

1862 Sutton, Field Flowers, M.D., Balham hill, Clapham, S.

Elected

1859 Sutton, John Maule, M.D., Bloomfield, Narberth, Pembrokeshire.

1859 Swayne, Joseph Griffiths, M.D., Physician-Accoucheur to the Bristol General Hospital; Clifton, Bristol. *Council*, 1860-61. *Vice-Pres.* 1862-64. *Hon. Loc. Sec.*

1860 Sweeting, George Bacon, M.R.C.P., Lynn Regis, Norfolk.

1863 Swyer, Septimus, L.R.C.P., Edinb., 19, Brick lane, Whitechapel, E.

1859 Sydenham, John Pudsey Welchman, Islip, Oxon.

1860 Sykes, Richard, Drighlington, near Leeds.

1859 Symonds, Frederick, F.R.C.S., Surgeon to the Radcliffe Infirmary; 32, Beaumont street, Oxford. *Council*, 1862-65. *Hon. Loc. Sec.*

1861 Tanner, John, M.D., 75, Newington Causeway, S.E.

1859 Tanner, Thos. Hawkes, M.D., F.L.S., 9, Henrietta street, Cavendish square, W. *Hon. Sec.* 1859-62. *Vice-Pres.* 1863-65.

1859 Tapson, Alfred Joseph, M.B. Lond., 35, Gloucester gardens, Westbourne terrace, W. *Council*, 1862-64.

1863 Tapson, Joseph Alfred, High street, Clapham, S.

1862 Tasker, Richard Thomas, Melbourne, near Derby.

1859 Taylor, Charles, M.D., 79, Camberwell road, S.

1859 Taylor, David, 2, Kennington row, Kennington park, S.

1859 Taylor, Edward, Clapham common, S.

1862 Taylor, Thomas, F.R.C.S., 19, Bennett's hill, Birmingham.

1862 Thane, George Dancer, M.D., 15, Montague street, Russell square.

1860 Thomas, Frederick, M.D., Tower terrace, Upper Norwood.

1860 Thorne, George Leworthy, M.D., Swanage, Dorset.

1862 Thornton, William Henry, M.D., Springfield terrace, Dewsbury, Yorkshire.

1860 Tiffen, Robert, Wigton, Cumberland.

1859 Tilt, Edward John, M.D., Consulting Physician to the Farringdon General Dispensary; 60, Grosvenor street, W.

1859 Times, Henry G., 4, Thayer street, Manchester square, W.

1861 Tomlinson, Robert Sherratt, Burton-on-Trent.

1860 Torbock, Thomas Reddish, M.D., 30, Skinnergate, Darlington.

Elected

1862 Tracy, Richard T., M.D., Physician to the Lying-in Hospital, Melbourne, Victoria.

1859 Traer, James Reeves, F.R.C.S., 47, Hans place, Sloane street, S.W. *Council*, 1865.

1860 Tuke, James Kingdon, 1, Devonshire place, Brighton.

1859 Tulloch, James Stewart, M.D., Surgeon to the Westbourne Dispensary; 1, Pembridge place, Bayswater, W.

1864 Turnbull, M. W., M.D., Physician to the Lying-in Hospital, Melbourne, Australia.

1861 Turner, Richard, School hill, Lewes, Sussex.

1863 Tutin, John Hasledine, Surgeon to the Ripon Dispensary, Westgate, Ripon, Yorkshire.

1861 Tweed, John James, Jun., 14, Upper Brook street, W.

1859 Vaudin, Charles, L.R.C.P. Edinb., Physician to the Jersey General Dispensary; 60, New street, St. Helier's, Jersey.

1860 Varenne, Ezekiel G., Kelvedon, Essex.

1860 Vincent, Patrick, Wells-next-sea, Norfolk.

1862 Vine, George John, M.D., 3, Henrietta street, Covent garden, W.C.

1860 Wade, Henry Thomas, London terrace, Derby.

1864 Wahltuch, Adolphe, M.D., 21, Lever street, Piccadilly, Manchester.

1859 Waits, Joseph, 9, Upper North street, Poplar, E.

1860 Wales, Thomas Garneys, Jun., Downham, Norfolk.

1859 Waller, John Turpin, Flegg Burgh, Norfolk.

1860 Walker, Thomas Houghton, M.D., Tolleshunt D'Arcy, Kelvedon, Essex.

1860 Walker, William Henry, L.R.C.P. Edinb., Aldborough, near Darlington, Yorkshire.

1863 Walters, Reginald Bayley, 18, William street, Regent's park, N.W.

1864 Walton, Brinsley Marcius, Hurstpierpoint, Sussex.

1859 Wane, Daniel, M.D., 20, Grafton street, Bond street, W.

1859 Warden, Charles, M.D., 39, Temple street, Birmingham.

1860 Ward, Joseph, Hill House, Epsom, Surrey.

1860 Ward, John, Penistone, Sheffield, Yorkshire.

Elected

1862 Watkins, Charles Stewart. 11, Chandos street, Strand, W.C.

1859 Watson, Samuel. F.R.C.S. Ed., Cottingham, Hull.

1861 Watts, George Henry. Thatcham, near Newbury, Berks.

1859 Webb, J. Craske, M.D., 23, Grosvenor street west, Eaton square, S.W.

1859 Webb, Henry Speakman, Welwyn, Herts.

1859 Webster, George, Peckham Rye, S.E.

1860 Welchman, Charles Edward Elliot, Bore street, Lichfield, Staffordshire.

1859 Wells, T. Spencer, F.R.C.S., Surgeon in Ordinary to H.M.'s Household; Surgeon to the Samaritan Free Hospital for Women and Children; 3, Upper Grosvenor street, W. *Council*, 1859.

1859 West, Robert Uvedale, M.D., Alford, Lincolnshire. *Council*, 1859. *Vice-Pres.* 1860-62.

1859 Westmacott, John Guise, M.D., Medical Officer to the Paddington Provident Dispensary; 10, St. Mary's terrace, Paddington, W.

1860 Wheeler, Daniel, Chelmsford, Essex.

1862 Wheelhouse, Claudius Galen, Surgeon to the Leeds Dispensary, and Lecturer on Anatomy, Leeds School of Medicine; 16, East parade, Leeds.

1860 White, Frederick George, L.R.C.P. Edinb., West Drayton, Middlesex.

1859 Whitehead, James, M.D., Physician to the Manchester Clinical Hospital; 87, Mosley street, Manchester. *Council*, 1859-61.

1864 Whitmarsh, William Michael, M.D., Hounslow, Middlesex.

1864 Wilks, A. G. P., M.B. and M.S. Camb., Guy's Hospital.

1864 Williams, Arthur Wynn, M.D., Physician-Accoucheur to the St. George's and St. James's Dispensary; 20, King street, Portman square.

1861 Williams, David John, M.D., Queenscliff, Geelong, Victoria, Australia. *Hon. Loc. Sec.*

1864 Williams, Edward, M.D., Holt Street House, Wrexham.

Elected

1860 Williams, Robert Hankinson, L.R.C.P. Edinb., Great Eccleston, near Garstang, Lancashire.

1860 Wills, John, M.D., St. Helier's, Jersey.

1859 Wilson, James George, M.D., Professor of Midwifery, University of Glasgow, Physician-Accoucheur to the Glasgow Lying-in Hospital and Dispensary; Clarence place, Sauchiehall street, Glasgow. *Council*, 1863-64. *Vice-Pres.* 1865.

1860 Wilson, Robert James, L.R.C.P. Edinb., 24, Grand Parade, St. Leonard's-on-Sea, Sussex. *Hon. Loc. Sec.*

1860 Winterbotham, John, Castleton, near Sheffield, Derbyshire.

1860 Wiseman, William Wood, Springstone House, Ossett, near Wakefield, Yorkshire.

1859 Witten, Edward W., 3, Gibson square, Islington, N.

1860 Wood, William James, Brightwaltham, Wantage, Berks.

1864 Woodman, William Bathurst, M.D., Resident Medical Officer to the London Hospital.

1859 Worship, J. Lucas, Riverhead, Sevenoaks, Kent.

1860 Wright, George, Middleham, W. Bedale, Yorkshire.

1861 Young, William Butler, 5, Castle street, Reading, Berks.

CONTENTS.

	PAGE
List of Officers for 1865	v
List of Presidents	vi
List of Referees of Papers for 1865	vii
List of Honorary Local Secretaries	viii
Trustees of the Society's Property	ix
List of Honorary Fellows	ix
List of Ordinary Fellows	xi
Contents	xxxvii
List of Plates	xli
Advertisement	xlii

January 6th, 1864—

Annual General Meeting 1, 10

„ Abstract of Receipts and Expenditure, 1859—63 12

„ Address of the President, Henry Oldham, M.D. 14

I. Case of Lesion (Rupture ?) of the Placenta. By Henry M. Madge, M.D. 1

II. Extra-uterine Fœtation, followed by Intra-uterine Pregnancy; Induction of Premature Labour. By Edwin E. Day, M.R.C.P. 3

III. Description of the "Guide-Hook," a new Obstetric Instrument. By Samuel Newham. (Communicated by Dr. Graily Hewitt) 7

Adhesions between the Uterus and Rectum. (Dr. E. Day) 10

February 3rd, 1864—

IV. On Fibrous Tumours of the Uterus, treated by Surgical Means. By I. Baker Brown, F.R.C.S. . . 21

V. On some Cases of Ovariotomy, with remarks. By Thomas Bryant, F.R.C.S. . . . 35

March 2nd, 1864— PAGE

Case of Fatal Umbilical Hæmorrhage in an Infant. (Dr. Graily Hewitt) 65

VI. Eight additional Cases of Ovariotomy. By W. Tyler Smith, M.D. 66

April 6th, 1864—

Ovarian Tumour. (Dr. Oldham) 75

Hypertrophy of the Cervix Uteri, removed by the Wire Rope Ecraseur. (Dr. Greenhalgh) . . 75

VII. On the Operation of Cephalotripsy, as performed at Vienna by Professor Braun. By C. G. Ritchie, M.D. 75

VIII. On Spondylolisthesis, with Account of a Case of Pelvic Contraction, from this Affection, in which Premature Labour was Induced by the Author's Method. By Robert Barnes, M.D., F.R.C.P. . . 78

IX. Appendix to the Foregoing Memoir. By Robert Barnes, M.D., F.R.C.P. 98

May 4th, 1864—

Small Fibroid Tumour. (Dr. Barnes) . . 101

Amputation of Cervix Uteri. (Dr. Greenhalgh) . 102

X. Case of Cauliflower Excrescence of the Uterus. By E. F. Fussell, M.B., Brighton . . . 102

Ovum of Seven Months expelled entire. (Dr. Whitmarsh) 105

XI. On the Application of Extreme Cold, as an Anodyne in the pain attendant on Parturition. By J. Mortimer Granville, L.R.C.P., Bristol . . . 105

XII. On a New Mode of Treating Cases of Vesico-vaginal Fistula. By Alfred Meadows, M.D., M.R.C.P. . 107

XIII. Case of Hydro-encephalocele. By A. Harris, M.D., Camborne 115

XIV. Case of Destructive Inflammation of the Hip-joint in a Puerperal Woman. By Thomas William Nunn, F.R.C.S. 116

June 1st, 1864—

Craniotomy Forceps. (Dr. Hall Davis) . . 123

Bandage after Labour. (Dr. Meadows) . . 125

XV. On Immediate Transfusion. By J. H. Aveling, M.D. . 126

XVI. Apparatus for the Performance of Transfusion. By Graily Hewitt, M.D. 136

June 1st, 1864 (*continued*). PAGE

XVII. Practical Remarks upon the Treatment of Placenta Prævia, with Illustrative Cases. By Robert Grfenhalgh, M.D. 140

July 6th, 1864—

Ovarian (?) Tumour. (Mr. Harper) . . 181

————Report on ditto. By Dr. Greenhalgh and Dr. Braxton Hicks 181

XVIII. Fibrous Tumour of the Cervix Uteri. By Gustavus C. P. Murray, M.D. 184

Uterus in Case of Puerperal Fever. (Dr. Snow Beck) . 186

Pelvimeter devised by Dr. Harris. (Dr. Greenhalgh) 186

Discussion on Dr. Greenhalgh's Paper on Placenta Prævia 188

October 5th, 1864—

XIX. Case of Cæsarean Section. From the Posthumous Papers of the late T. E. Bryant. (Communicated by T. E. Bryant) 197

Obstetric Binder. (Dr. Eastlake) . . . 205

XX. Description of a Deformity of Arms and Hands. By Dr. J. Shortt, Zillah Surgeon, Chingleput . . 205

XXI. Missed Labour. By A. Wynn Williams, M.D. . 208

XXII. Post-mortem Examination of a Woman at the Full Period of Gestation, and in the First Stage of Natural Labour; Death by Accidental Hæmorrhage, chiefly internally. By Frederick James Gant, F.R.C.S. (Communicated by Dr. Barnes) 214

November 2nd, 1864—

XXIII. Distension of Ureters, Pelvis of Kidney, etc., in an Infant. By Henry Gervis, M.D. . . . 221

XXIV. Double Monstrosity. By Fred. F. Jay, M.R.C.S. . 222

XXV. A Simple Instrument for Vaginal Injections. By Adolph Rasch, M.D., M.R.C.P. . . . 224

Anencephalous Monstrosity. (Dr. Braxton Hicks) . 226

XXVI. On the Management of the Third Stage of Labour. By Henry E. Eastlake, M.D. . . . 226

December 7th, 1864— PAGE

Forceps with Spring-racket. (Mr. Gayton) . . 249
Piliferous Cyst of the Ovary. (Dr. Barnes) . . 249
XXVII. Case of Complete Extirpation of the Uterus and Ovaries, with Large Fibrous Tumours. By I. Baker Brown, F.R.C.S. 249
Dr. Marion Sims' Modification of Chassaignac's Ecraseur. (Dr. Graily Hewitt) 254
XXVIII. On Puerperal Embolism. By Willoughby Francis Wade, M.B., M.R.C.P., Birmingham. (Communicated by Dr. Graily Hewitt) . . . 255
XXIX. Inquiry into the best Mode of Delivering the Fœtal Head after Perforation. By J. Braxton Hicks, M.D., F.R.S. 263

LIST OF PLATES.

		PAGE
I.	Extra-uterine fœtation, followed by intra-uterine pregnancy: the cyst containing the fœtus—Fallopian tube and uterus laid open (Dr. E. Day)	6
II.	Cephalotribe and Perforator of Professor Braun (Vienna)—Cephalotribe of M. Pajot (Paris)	78
III.	Spondylolisthesis: the Prague and Paderborn pelves (after Kilian)	100
IV.	Ditto: pelvis of Breslau's second case	100
V.	Ditto: anterior and posterior aspects of the sacrum in Olshausen's case	100
VI.	Cauliflower excrescence of the uterus: the fibroid tumours, surface from which removed, &c. (Dr. Fussell)	104
VII.	Fibrous tumour of the cervix uteri (Dr. Murray)	184
VIII.	Distension of the bladder, ureters, &c., in an infant	221
IX.	Large fibrous tumours of the uterus: extirpation of uterus and ovaries (Mr. Baker Brown)	254

Woodcuts.

The "Guide-Hook:" a new Obstetric Instrument (Mr. Newham)	8
Spondylolisthesis, doubtful congenital lardosis: case of Dr. Robert, of Coblentz	81
New Craniotomy Forceps (Dr. Hall Davis)	124
Immediate Transfusion: position of the patient and of the person supplying the blood (Dr. J. H. Aveling)	133
Apparatus for the performance of Transfusion (Dr. Graily Hewitt)	137
Treatment of Placenta Prævia: the Vaginal Plug (Dr. Greenhalgh)	176
—— the Bandage (ditto)	177
—— the Air-pad (ditto)	178
Pelvimeter, devised by Dr. Harris (Dr. Greenhalgh)	187
Deformity of Arms and Hands (Dr. Shortt)	206
Double Monstrosity (Mr. F. Jay)	223
Instrument for Vaginal Injections (Dr. A. Rasch)	225
Outline of the Pelvic Brim [in Dr. Swayne's case of Cæsarean Section], with Head of Fœtus shown in Face Presentation after removal of Calvareum (Dr. B. Hicks)	277

ADVERTISEMENT.

The Society is not as a body responsible for the facts and opinions which are advanced in the following papers and communications read, or for those contained in the abstracts of the discussions which have occurred, at the meetings during the Session.

OBSTETRICAL SOCIETY

OF

LONDON.

SESSION 1864.

Annual General Meeting, January 6th, 1864.

Dr. Oldham, President, in the Chair.

The following gentlemen were elected Fellows :—Alfred G. Brown, Esq., Woolwich; Dr. Fleetwood Buckle, Royal Mint; William Gilbee, Esq., Melbourne, Australia; Edward Head, M.B., Harley Street; L. J. Martin, M.D., Melbourne, Australia; Dr. Playfair, London; Dr. Pugh, Melbourne, Australia; Dr. Ritchie, London; B. M. Walton, Esq., Hurstpierpoint; Dr. W. M. Whitmarsh, Hounslow.

CASE OF LESION (RUPTURE?) OF THE PLACENTA.

By Henry M. Madge, M.D.

Dr. Madge exhibited a placenta, and said he was induced to bring it before the Society for the purpose of raising a question as to the cause of the lesion it had sustained. The particulars of the case were as follows :—M. B—, æt. 20, four and a half months advanced in her first pregnancy, about a fortnight before Christmas day, was carrying a pitcher of

water up to her room, when she fell forwards on the stairs, the bone of her stays coming with great force against the lower part of her abdomen. She felt severe pain in the part struck, and was obliged to be carried to bed, where she remained two or three days. She then got about, still more or less in pain, up to Christmas day, when she miscarried. The only points about the miscarriage calling for notice are—1st. The very small amount of blood discharged. 2nd. A slight constriction of the cord near its placental insertion. 3rd. A torn or ruptured appearance of the placenta, unlike the breaches in its surface usually observed. The placenta also contained within its substance a large clot of blood, which seemed to have disorganized and displaced nearly one half of its normal structure. The question sought to be raised is this—How was the clot of blood formed? It is just possible that the constriction of the cord might have produced apoplexy of the placenta, with effusion of blood, leading to the clot formation; or it might have been formed by some other less evident means. We have, however, another way of accounting for it. There is, perhaps, something of novelty about the term "ruptured placenta." We hear of ruptured lungs, spleens, livers, and kidneys, caused by blows or external violence; and Dr. Madge wished to ask the Fellows of the Society, whether there might not also be "ruptured placentæ" from similar causes, and whether the details of this case, with the appearances of the placenta, did not prove it to be an example of that kind of injury?

Dr. Oldham and Dr. Druitt doubted the correctness of the view expressed by Dr. Madge.

Dr. Madge, in reply, said he was well acquainted with the various morbid conditions of the placenta that had been mentioned in the discussion; but he thought that bringing them forward was scarcely an answer to the question he had proposed to the Society. He was inclined to believe, that in this case, the bone of the stays ruptured a portion of the placenta, leading to a gradual effusion of blood into its substance, which, by-and-by, caused its functions to cease. The total absence of external hæmorrhage, from first to last, showed that the obliteration of the utero-placental connections had been brought about in a very

gradual manner, and that the injury led to bleeding into the substance of the placenta, and not into or between the utero-placental deciduæ.

Note.—Since relating the above case to the Society, I have met with a case recorded in the 'Lancet,' (April 27, 1827), which illustrates, in a forcible manner, the possibility of direct violence to the abdomen, causing easily recognised injuries to the contents of the pregnant uterus. The following is a short abstract:—"The mother fell on her abdomen in the sixth month of pregnancy. Delivery took place soon after. The tibia was found fractured—the malleolus being separated from the rest of the bone." Now, considering how easily the placental substance breaks down under the finger, I think it is quite possible that many of the morbid conditions which have been described by authors on the subject, might have had their origin in this "hitherto unrecognised form of accident."—H. M. M.

EXTRA-UTERINE FŒTATION, FOLLOWED BY INTRA-UTERINE PREGNANCY. INDUCTION OF PREMATURE LABOUR.

By Edwin E. Day, M.R.C.P. Lond.

Mr. President and Gentlemen—I will, with your permission, read you the history of the case, and then offer a few remarks upon it.

Mrs. C— had had five children when she first came under notice at King's College Hospital, where she was attended by one of the students, and a tumour was discovered in the recto-vaginal pouch and pushed upwards, while the head descended into the pelvis. This was on the 6th of September, 1859.

On the 7th of January, 1861, she was admitted into King's College Hospital, and premature labour was induced at the eighth month, by Dr. A. Farre. After this she was frequently examined both by Dr. A. Farre and Mr. Fergusson, and the propriety of removing the tumour was discussed; but it was agreed to leave it alone, as it would be requisite to open the peritoneal cavity to get at it.

In August, 1862, she came again into the hospital, suffering from flooding, and was delivered under the care of Dr. Farre of a seven months' fœtus. At this time the tumour seemed to be larger, not from any increase in the tumour itself, but from thickening in the neighbourhood.

She left the hospital on October 1st, menstruated immediately afterwards, and becoming pregnant, quickened about the middle of January.

She again applied at King's College in the beginning of May.

On examination I found a tumour about the size of a goose's egg, at the back of the vagina, in the recto-vaginal pouch, and passing backwards by the side of the rectum, appeared to pass towards the sacrum, to which, however, it was not attached. It was hard and nodulated in character, rather giving one the idea of a mass of hardened fæces. It seemed like one of those fibrous growths from the uterus, which had become detached, and falling into the recto-vaginal pouch, had become encysted.

As Dr. Farre had considered the tumour increased in size between January, 1861, and August, 1862, I thought it advisable to bring on labour at seven and a half months.

On May 18th, 1863, I began by separating the membranes all round the os. This was at 3 p.m.

At 8 p.m. no progress had been made, and I introduced a pear-shaped caoutchouc bag into the uterus and gradually inflated it, so that the upper part was in the cavity of the uterus, and the neck of the pear corresponded to the cervix.

Having inflated it, I let the air escape; again inflated and let it escape; so on for twenty minutes. The bag then burst, and I left the woman alone.

19th, 3 p.m.—Pains had been coming on gradually but with little result. Ordered two doses of ergot.

20th.—The pains had increased in frequency. The os was dilated to the size of a crown-piece, the membranes protruding at each contraction. Pulse 120. Head presenting.

I then punctured the membranes, and in the course of the next few minutes a contraction took place which drove down the funis. Having failed to replace it, I turned the child;

but considerable difficulty was experienced, so that before the head escaped the child was dead. The placenta was everywhere adherent and very lacerable. The uterus contracted well. This was at 4.30 p.m. At 11 p.m., the uterus was relaxed, and reached as high as the umbilicus. Cold applications and pressure caused the extrusion of several clots, and it resumed its proper size.

21st.—No more hæmorrhage or clots, lochia natural, after-pains severe. In the evening she had an opiate draught to relieve the after-pains.

22nd.—Pains less; uterus well contracted; pulse 110. I saw her at 3 p.m., when, beyond the quick pulse and an irritating cough, she appeared progressing favorably. Between 3 and 4 her mother and husband came to see her. She sat up and talked to them and then took her tea. At 4.30 hæmorrhage came on, and before it could be controlled she was so far gone that she sunk and died.

Post-mortem, twenty-two hours after death.—The abdomen being opened, there was found in the recto-vaginal pouch a fœtus apparently between three and four months old, enclosed in a thin cyst, and attached to the peritoneum on the right side of the rectum. (See Plate I *a*.)

The Fallopian tube of the right side contained a tumour in its outer half, which, on being cut into, showed what seemed to be an organized clot and remains of deciduous membrane; and what added more to the interest of the case, the Fallopian tube of the right side was attached to the base of the uterus, while that on the left side was attached to the fundus. This peculiar position seemed to show a disposition to a bifid uterus.

The points to which I wish to call your attention are three:—

1st. The escape of the ovum from the Fallopian tube without causing death, and no history to be obtained of the accident.

2nd. The peculiar position of the Fallopian tubes.

3rd. The method of inducing labour. Of the various methods of inducing premature labour, that introduced by Dr.

Barnes seems the one to be most depended upon for bringing on labour within a definite period; but there seems to me one point connected with it capable of improvement—by his method, if I understand it aright, the fluid pressure for dilating the cervix is constant. Now, we know, that constant pressure is apt to be injurious; we know how it causes absorption of parts. The most familiar example of this is presented in a case of stricture of urethra, where it is a matter of very common observation. If we leave a catheter in the bladder, for a short period, how soon the hardened structures melt down. I, therefore, proposed and carried out a plan not perfectly, but to a certain extent, which resembles the natural process more closely, viz. alternately dilating and relaxing the cervix. It seems to me, that this gradual process, if continued for three quarters of an hour, or an hour, would induce labour as much as possible under natural circumstances.

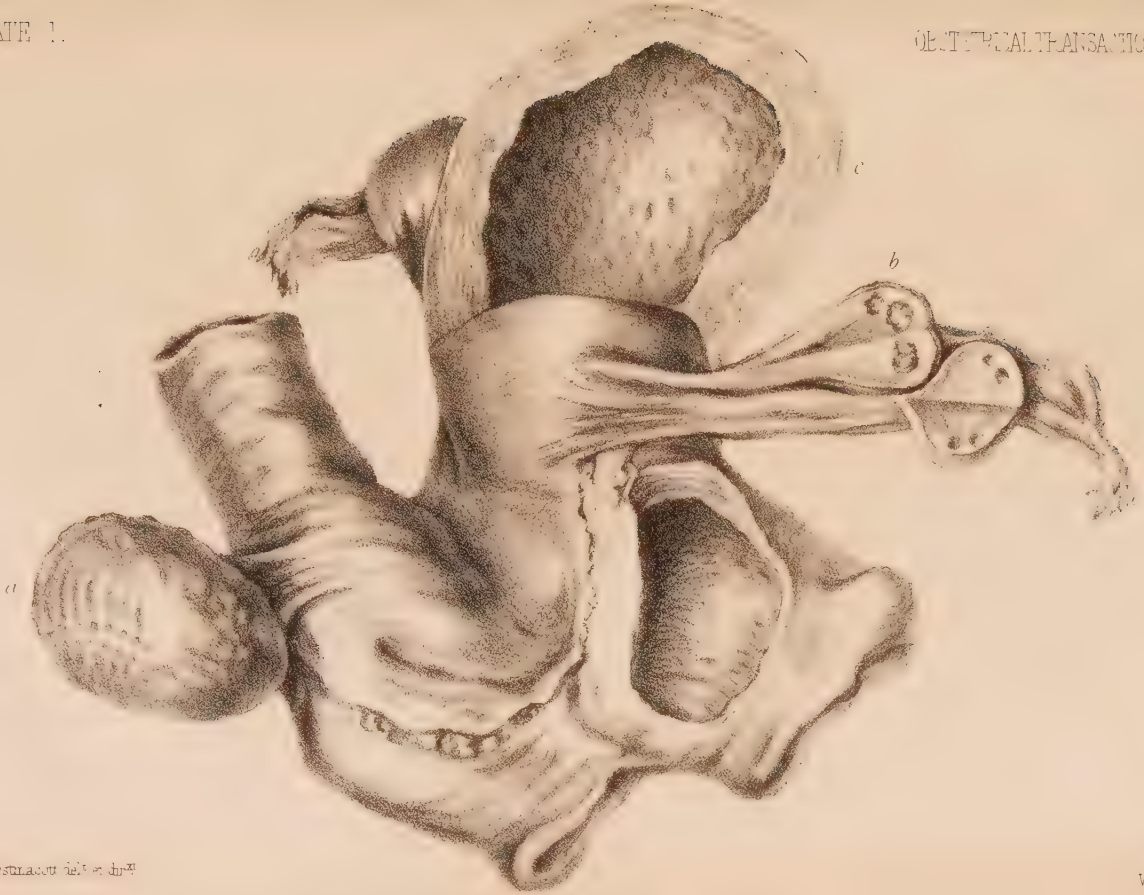
Dr. Braxton Hicks remarked that the position of the fœtus in the tube was similar to that on which he, with Dr. Tyler Smith, had reported at the December meeting of last year. He took exception to the term "decidua" in the remnants of the tubal cyst. It was very doubtful whether there was any decidua in the tube. In the cases he had reported in the 'Guy's Hospital Reports' there was none; nor in the very specimens in the museum of Guy's Hospital, which had been quoted as having a deciduous membrane, he had found the supposed tissue nothing more than fibrine without cellular structure.

DESCRIPTION OF PLATE I,

(To illustrate Dr. Day's paper).

a. The cyst attached to the right side of the rectum, and containing a fœtus.
b. Fallopian tube of right side laid open.
c. Uterus laid open.

PLATE 1.



Dr Westmacott del. et dir.

W West lith.

DESCRIPTION OF THE "GUIDE-HOOK," A NEW OBSTETRIC INSTRUMENT.

By Samuel Newham, Esq., F.R.C.S.,
BURY ST. EDMUND'S.

(Communicated by Dr. Graily Hewitt.)

This invention is simply a blunt-hook, with the addition of a prow or guide.

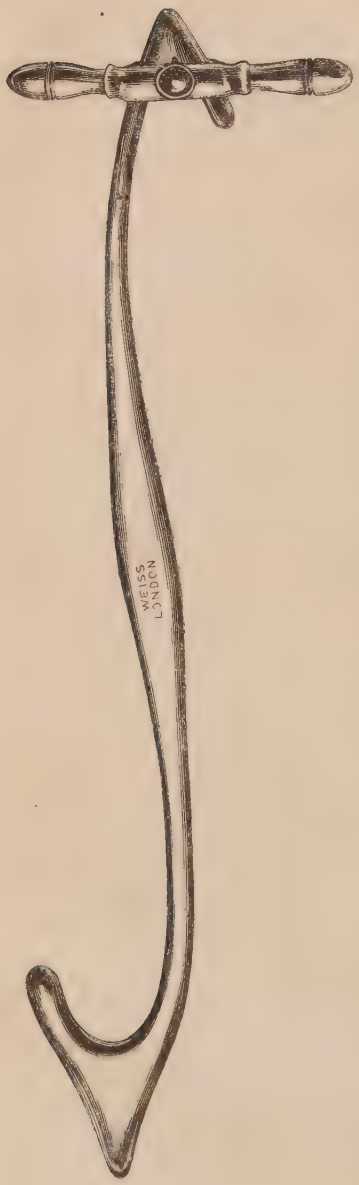
The addition of the guide to the hook is for the purpose of favouring the adjustment of the hook into many positions in which a hook is required. It is not intended by this instrument, however, to supersede the use of the ordinary blunt-hook, for the blunt-hook may be used under circumstances in which it might not be safe to use the guide-hook. It is intended to supplement many purposes which the blunt-hook is not constructed to carry out.

The purposes for which the guide or prow will be found useful are:

1st. The insertion of the hook into any opening, whether a natural one, or one effected by the previous use of any other instrument.

After perforation of the head, not only is the hook with the addition of the guide more easily introduced, but the larger guide itself may be used as a means to dilate the opening and break up the bones, and thus freely to discharge the contents of the skull, obviating in this way a prolonged use of the perforator.

In comparatively undilated conditions of the os—in very contracted pelvis—or in any position of the fœtus where it is necessary to introduce the hand far within the mother and there is probability of the bones overlapping after perforation, or of the skin overlaying the artificial opening, a slight use of the perforator and free use of the guide-hook is much less liable to the production of accidents to the uterus



or vagina than the sole use of the perforator and crotchet, both which latter instruments, having cutting edges, are liable to prove hurtful to both patient and operator. The guide-hook, having no cutting edges, is free from this liability.

2nd. After opening the head at or about the vertex in ordinary presentations, the guide-hook may be made use of to extract by the insertion of it into the foramen magnum, and also by a little force and rotation, by its insertion into any of the bones of the base of the skull. For this purpose the smaller end is most suitable, and by a repetition of this boring and breaking process the base of the skull may be so disintegrated that extraction becomes a matter of ease. By thus piercing, seizing hold of the basilar portions of the skull and drawing down, the contents of the skull are much more easily ejected than by seizing the calvaria by the crotchet.

In cases where turning has been accomplished, after first perforating any of the basilar portions of the skull,

the guide-hook is of great value in breaking up the arch and strength of the bones. In many instances it is hardly necessary to use the perforator. By first using the smaller and then the larger end, almost any part may be entered and broken up.

3rd. In cases where it is required to perforate at the roof of the mouth, or in thrusting through the orbits, the guide-hook is of valuable assistance—preceding the use of the larger end by first inserting the smaller.

4th. In cases of asymmetrical pelvis the guide-hook is of great service in turning the direction of the head into a more convenient axis—that is, in directing the occiput to the wider side—the guide, for this purpose, being thrust into the base of the skull, and then rotated.

5th. In perforating or thrusting into the thorax, whether before or after the removal of the arm, the guide-hook is also of value.

6th. In cases of evisceration through artificial openings, or by insertion of it into the anus, the guide-hook much facilitates every proceeding.

Of course there are circumstances in which it is necessary to use a hook in which the guide might be an encumbrance, or even an obstruction, but the care which an adept operator would always exercise in the use of any instrument would reduce these circumstances to very few in number. In many instances a hand or fingers may be used in advance of the guide, and no fear of accident need be dreaded.

I feel great satisfaction myself in possessing so useful an addition to my *armamentum obstetricum*, and confidently advise every accoucheur to add the guide-hook to his collection of instruments.

P.S.—I have had also constructed a handle or key to fix on the smaller end of the guide-hook, to enable the operator to act with force when the larger end is inserted in any part which is very solid or difficult to move.

ADHESIONS BETWEEN THE UTERUS AND THE RECTUM DRAGGING DOWN THE FUNDUS UTERI.

Dr. Day exhibited a preparation which he had taken from the post-mortem theatre, of a uterus tied back to the rectum by bands of lymph, which also tied the left ovary down to the back of the uterus. This, he remarked, seemed to explain the fact that one met with occasionally in making vaginal examinations, viz. the altered position of the ovary.

Dr. Day asked the Society whether or no it was considered possible to stretch such adhesions when once they were ascertained to exist?

Dr. Oldham and Dr. Graily Hewitt made some remarks.

After the Ordinary Meeting the business of the Annual Meeting commenced.

REPORT OF THE AUDITORS.

"We, the auditors appointed to examine the accounts of the Obstetrical Society of London for the year 1863, beg to report that we have carefully examined the same and compared them with the vouchers. The accompanying balance-sheet, showing a balance in the hands of the Treasurer of £255 12*s.* 3*d.*, is correct. We find that there is also standing in the names of the Trustees of the Society the sum of £550 in consols, of which £150 has been invested in the course of the past year.

(Signed) Henry Gervis.
Edward Ray.
Graily Hewitt."

A printed statement of the receipts and expenditure of the Society during the past five years was also handed round for the inspection of the Fellows. (See pp. 12 and 13.)

It was moved by Dr. Routh, seconded by Dr. Cleveland, and carried,—That the Report of the Auditors be received and entered on the minutes. Dr. Routh alluded in terms of very congratulatory character to the exceedingly satisfactory financial position of the Society, which he considered reflected the greatest credit on the management.

Mr. Bryant and Dr. Tilbury Fox moved and seconded a vote of thanks to the President and Officers of the Society for their valuable services during the past year.

Dr. Oldham and Dr. Graily Hewitt returned thanks.

The list of "Donations" during the year was then read. A Ballot then took place for the election of Officers for 1864, at the conclusion of which the President announced the result of the ballot to be as follows:—

Honorary President.—Sir Charles Locock, Bart., M.D.

President.—Dr. Oldham.

Vice-Presidents.—Dr. Druitt, Dr. Gream, Dr. Greenhalgh, Mr. Hardey (Hull), Dr. Swayne (Bristol), and Dr. Tanner.

Treasurer.—Dr. Barnes.

Honorary Secretaries.—Dr. Graily Hewitt and Dr. J. Braxton Hicks.

Other Members of Council.—Dr. Clay (Manchester), Dr. Cleveland, Dr. Hall Davis, Dr. Drage (Hatfield), Dr. Gervis, Dr. Hall (Brighton), Mr. Harrinson (Reading), Dr. Langmore, Dr. Meadows, Dr. Madge, Mr. Mitchell, Dr. Gustavus Murray, Dr. Ray, Dr. Richards, Dr. Tyler Smith, Mr. Symonds (Oxford), Dr. Tapson, Dr. Wilson (Glasgow).

The President then delivered the annual address.

Abstract of the Receipts and Expenditure of the ending

		1859.			1860.		
		£	s.	d.	£	s.	d.
RECEIPTS.	Subscriptions	336	0	0	399	0	0
	Composition Fees	...	...	...	10	10	0
	TRANSACTIONS:						
	Sale of, to Fellows	...	...	...	11	0	6
	Sale of, by Messrs. Longman	...	...	...	...	..	...
	INTEREST:						
	On Funded Property	...	...	...	...	...	...
	On Bank Deposit	...	...	...	...	...	...
	Total Receipts	336	0	0	420	10	6
EXPENDITURE.	Printing, Preliminary and other Prospectuses, Bye Laws, Circulars, Envelopes, Postages, &c.	43	3	0	25	5	6
	Stationery, Account Books, Cards, Circulars, Envelopes, Postage, &c.	47	18	7	20	17	4
	Seal of the Society	...	...	...	8	11	0
	Brass Plate for Door	1	8	6	...	...	...
	Diplomas for Honorary Fellows	...	...	...	...	...	...
	TRANSACTIONS:						
	Printing, Paper, Plates, and Binding	...	...	...	181	19	0
	Index	...	...	...	1	5	0
	Delivery of the Volume	...	...	...	6	0	0
	Advertisements	9	16	0	1	14	0
	Petty Expenses	18	11	5	8	6	2
	Assistance to Hon. Secretaries	...	...	...	6	6	0
	Catalogue of Library	...	...	...	...	...	...
	Collector's Poundage	...	...	...	5	5	0
	Use of Room for Meetings	20	0	0	20	0	0
	Expenses of Meetings, Waiters, Refreshments, &c.	22	3	0	21	0	0
	Total Expenditure	163	0	6	306	9	0
	Balance of Receipts over Expenditure	172	19	6	114	1	6

Obstetrical Society of London for the five years December, 1863.

1861.			1862.			1863.			Totals.		
£	*s.*	*d.*	£	*s.*	*d.*	£	*s.*	*d.*	£	*s.*	*d.*
428	8	0	457	15	0	474	12	0	2095	15	0
21	0	0	21	0	0	...	...	...	52	10	0
14	0	6	17	6	6	13	2	6	55	10	0
32	18	3	31	2	11	42	14	7	106	15	9
...	...	...	6	3	3	14	14	8	20	17	11
1	2	4	2	15	9	0	17	9	4	15	10
497	9	1	536	3	5	546	1	6	2336	4	6
24	18	0	13	16	8	...	...	...	107	3	2
15	2	9	18	14	3	19	2	3	121	15	2
...	...	...	...	...	...	...	...	...	8	11	0
...	...	...	...	...	...	...	...	...	1	8	6
...	...	...	15	0	0	...	...	...	15	0	0
180	11	7	260	2	0	207	16	1	830	8	8
1	5	0	1	15	0	1	7	0	5	12	0
5	10	0	5	5	0	5	12	6	22	7	6
3	1	6	7	7	0	6	11	6	28	10	0
7	4	5	12	12	2	11	9	1	58	3	3
7	16	0	5	0	0	4	12	0	23	14	0
1	16	0	1	5	0	2	12	0	5	13	0
20	18	0	21	4	0	22	16	0	70	3	0
23	0	0	21	0	0	42	0	0	126	0	0
21	0	0	21	0	0	21	0	0	106	3	0
312	3	3	404	1	1	344	18	5	1530	12	3
185	5	10	132	2	4	201	3	1	805	12	3

	£	*s.*	*d.*
Total of Balance of Receipts over Expenditure	805	12	3
Amount invested in Consols—1862 .....£400			
" " 1863 150			
	550	0	0
December 31st, 1863, Balance at the Society's Bankers'.....	£255	12	3

ANNUAL ADDRESS

DELIVERED BY THE PRESIDENT,

HENRY OLDHAM, M.D., F.R.C.P.

GENTLEMEN,—This is the occasion on which it is the custom of the Society for the President to address the Members, with the object of informing them of the present state of the Society, and of any matters of interest which may have transpired during the past year. My task to-day will be simple and easy, for I have to recount nothing but a progressive prosperity, which, from the establishment of this Society, to the present time, has been undeviating. During the past year we have not had to face a vicissitude; no great question has agitated our body; nor has there been a jar or discord amongst ourselves. The number of our Fellows is 535, of whom, 41 have been elected in the year 1863; and I may note, as a subject of conspicuous interest, that medical men, in our most distant colonies, have been attracted to join us; and, at our last meeting, I had the pleasure of submitting three proposals from Melbourne, transmitted through Dr. Featherston, Physician to the Lying-in-hospital there. We have also Fellows in Constantinople, India, Jamaica, New Zealand, Australia, and New South Wales. This unchecked success is a sufficient proof of the pressing need there was for an Obstetrical Society, which should be the channel for contributions to obstetrics and the diseases of women and children. There are those, I know, who think that in the Medical and Chirurgical Society we should find scope enough both for the expression of our opinion and the record of our papers. But no one can look back for the last five years, and have observed the eagerness with which association with this Society was first sought; the steady accession to its numbers; the matter of its 'Transactions;' the character of its debates; the authority of its judgment on disputed points—and not be persuaded that we have in it a far better

hope of advancing Obstetric Science, and expounding Obstetric Practice, than when confined to the narrower agency of the older Society.

I doubt much, whether those who still abstain from joining us on the ground I have named, have fairly measured the deep interest which the medical practitioner feels for all that relates to obstetricy. It is *not* enough to say that it is equal to the other divisions of the profession. I believe it to be *as a rule*, more constant and stronger. The truth is, it is awakened and sustained by the exigencies of practice. A hospital student does not generally know, practically, so much of obstetrics as he does of pure surgery or medicine. He may have attended lectures and a certain number of cases; but the impossibility of teaching him the art of touch, and of demonstrating every case to him, as well as the roving character of the work, as our lying-in charities are now constituted, is a bar to any great advance amongst the mass in clinical knowledge. It is at a later period, when a man feels that it is often the stepping stone to practice, and the centre of his success, that obstetrics claim his earnest attention. He trains himself, and his interest is kindled in the pursuit, and rarely deserts him. The Medical and Chirurgical Society could not represent this large section of industry. It needs our ten meetings in the year, and our full organization to do so adequately.

Our finances are satisfactory. We have £550 invested in the funds, of which £150 has been added during the past year, and the balance at our bankers' at the end of the year amounts to £255 12*s*. 3*d*. We have now and for the future to pay £42 a year to the Medical and Chirurgical Society for rent, &c.

You are aware that we possess a large number of books which have been presented to us by the late Dr. Rigby, Sir C. Locock, and Dr. Clay. They amount to 852 volumes, and we appointed a sub-committee, to consider how they might be best bestowed for the advantage of the members, and for the extension of the library. One or two rooms were offered us; but, after mature consideration, we thought it

better to wait, in the hope that the Medical and Chirurgical Society would be able to afford us space, security for our property, and the help of a librarian. We were reluctant to engage in a large current expenditure, unless we were tolerably secure of being able to gain an equivalent advantage for the members, and a settled location for our books. We shall have this object, however, in view, and we shall gladly embrace any opportunity which may present itself to establish a library.

We have elected six Honorary Fellows :—Professors Faye, Christiania ; Braun, Vienna ; Depaul, Paris ; Drs. Beattie, Dublin; Pagan, Glasgow; Professor Martin, Berlin; and from one of our former Honorary Fellows, Professor Scanzoni, we have received the gratifying announcement that he has dedicated his elaborate work on 'Chronic Metritis,' published in 1863, to the Obstetrical Society of London, in recognition of the manner in which this Society has advanced gynæcology, &c.

Our transactions include four vols., already published, and the fifth will be published in a few days. They have been sold both to the Fellows and the public, and realise the following amounts in the different years :

		£	*s.*	*d.*
1860—Books sold to	Fellows . . .	11	0	6
1861— „ „	Fellows . . .	14	0	6
„ „	General Public . .	32	18	3
1862— „ „	Fellows . . .	17	6	6
„ „	General Public . .	31	2	11
1863— „ „	Fellows . . .	13	2	6
„ „	General Public . .	42	14	7

It is not for me to review the contents of our 'Transactions,' or to pass judgment upon them. They form part, and not an unimportant part, of the literature of obstetricy in England. But I cannot but advert to the contributions which several of our members, both London and Provincial, have made on one subject of deep practical import, namely, ovariotomy ; and it is largely to them that the profession is indebted for establishing this operation as rational and

legitimate. My own career has carried me through the dark time when ovarian disease had only the alleviation of tapping, sometimes, it is true, with long intervals of relief, but more frequently with the prospect of a fatal issue in from one to two years. This was followed by a still darker time, when ovariotomy was performed without an anæsthetic, and generally, in hospital practice, with a fatal result. Now, however, under a bolder and yet a more careful surgery, with large experience and better resources, the results have been favorable; and no one, I am sure, whose mind has been fettered with fears and anxieties and forebodings respecting it, even in the most favorable cases, but must exult in his being able to sanction and recommend it as an operation of hopeful promise. We must all feel, however, that to maintain the credit of the operation there needs considerable care in the selection of cases; and that we have yet to learn much by tactile examination of the condition of the pedicle as a most important prognostic.

Nor can I avoid, in almost similar terms, to remark on the admirable skill which has been displayed in perfecting the plastic operations for the cure of vesico-vaginal and recto-vaginal fistulæ. These, too, were amongst the most disheartening and intractable cases which were admitted into a public hospital; and now to be able to lift off that load of domestic misery which is associated, in the prime of female life, with these repulsive disasters, is amongst the most beneficent results of modern surgery.

The debates which have succeeded the papers have embraced a variety of subjects, and have been instructive and suggestive. The attention which has been displayed in the improvement of instruments, both for midwifery and the various operations on the female sexual organs, has been eminently useful; and I trust that the ingenuity of our members may be still further exercised upon them. A well-made pair of craniotomy forceps, which afford a secure hold on the head without lacerating the bones or slipping, is an invaluable instrument, and a flexible wire-rope has rendered the operation for the removal of polypi and the neck of the uterus one of com-

parative ease and safety. I have often wished that one or more of our discussions had embraced a revision of the precepts for the management of the puerperal state. There is no subject more important, for it embraces the well-doing of thousands, and involves practically the speedy or the protracted recovery of women after parturition. It involves, too, another point of interest. It fell to my lot to be questioned in a court of justice on the amount of my midwifery fee, and on the length of attendance which was included in it. My answer was in conformity with my practice for many years past, viz., that a week was enough for ordinary convalescence, and that I daily attended for that time; but should any complication arise after that time requiring my care, that I regarded it as a renewed engagement. In conversation, however, with some others in large midwifery practice, I find that they still acquiesce in the old notion of a puerperal month, during which they consider it obligatory on them to take charge of the patient, however well or however ill she may be, although admitting the hardship, in the absorption of their time and the harassing nature of their duties when called upon to attend in the severe forms of puerperal disease. I trust I may be pardoned for alluding to this subject, but undoubtedly there ought to be uniformity in our practice. I know no sufficient reason why our limit should not be a puerperal week, rather than a puerperal month. And, indeed, in all cases where parturition and lactation have been normally completed, I can only understand the need of medical care for a month on the supposition that the precepts which are laid down in some of our midwifery books for the management of this state steadily induce a debility in the first fortnight, which requires a drawling convalescence in the next fortnight to overcome. Parturition and its immediate sequels ought to be divorced from disease, and not be made to wear its likeness. But if directly a woman is safely delivered, without one untoward event or indication, she is made to take opium to arrest possible pains, and is then put upon a rigid diet of slops, lasting from three to five or seven days, to arrest the phantom of inflammation; if her natural impulse to liveliness is carefully toned down, to

avert what is called excitement; and if for a fortnight she is kept in the recumbent position, to avert a supposed tendency to prolapsus, I say that from first to last elements of weakness and nervous disorder are introduced, and the very diseases are invited which they were designed to avert. A puerperal month under the guidance of a monthly nurse is easily drawn out, and it is well if a love of the comforts of illness and the persuasion of being delicate, which are the infirmities of many women, do not induce a feeble life, which long survives after the occasion of it is forgotten. I know no reason why, if a woman is confined early in the morning, she should not have her breakfast of tea and toast at nine, her luncheon of some digestible meat at one, her cup of tea at five, her dinner with chicken at seven, and her tea again at nine, or the equivalent, according to the variation of her habits of living. Of course there is the common-sense selection of the articles of food, guarding against excess and avoiding stimulants. But gruel and slops, and all intermediate feeding, are to be avoided; and I affirm, having followed this plan for nearly twenty years, and inculcated it as a teacher, that the process of involution is greatly assisted by it; it averts the tendency to disorder of the nervous system; it promotes an easy lactation; after-pains are lessened by the freer expulsion of clots; the tone of the muscular and elastic fibres of the supporting textures of the uterus is sooner restored; the dangers of inflammation, which, as we now know, is phlebitic, are far less; a patient may be removed from the bed to a sofa in two or three days; her life may be one of cheerfulness, and the process of convalescence be abridged to the puerperal week. But I may not, on this occasion, pursue this subject further, as I trust, during the coming session, it may form a subject for discussion.

It only now remains for me to mention the losses which the Society has sustained by the death of its Fellows. We have to lament the death of three—Lysander Hooker Barnet, of 72, Fore Street, Limehouse, who died of phthisis in May, 1863. His father is still a Fellow of the Society;

Henry Guy, M.D., Dorset Square, who was for many years

an active Guardian of the poor in the parish of Marylebone;

And, a few days since, Francis Badgeley, M.D. Ed.

I trust, gentlemen, that the prosperity of our Society will continue to increase.

A vote of thanks to the President for his interesting address, proposed by Dr. Druitt, and seconded by Dr. Greenhalgh, was carried by acclamation. The Society then adjourned.

February 4th, 1864.

Dr. Greenhalgh, V.-P., in the Chair.

Present—41 Fellows and 8 visitors.
Dr. R. D. Pearson was elected a Fellow of the Society.

ON FIBROUS TUMOURS OF THE UTERUS, TREATED BY SURGICAL MEANS.

By I. Baker Brown, F.R.C.S. Exam.,

SENIOR SURGEON TO THE LONDON SURGICAL HOME.

On December 7th, 1859, I read a short paper before this Society, "On a Case of Fibrous Tumour of the Uterus, illustrating a Surgical Operation for its Cure." That patient still continues perfectly well.

On March 6th, 1861, I read a second paper, "On Fibrous Tumours of the Uterus, treated by Surgical Means," and I gave 6 cases to illustrate my practice, which, with the 1 in the first paper, makes 7 cases. Of these 7, 5 were cured, 1 relieved, 1 died. All the 5 are still well. In this second paper I said "that the treatment only applied to intra-uterine fibrous tumours of the non-pedunculated form, growing from the inside of the uterus by a broad base." I particularly desire this classification should also be understood with regard to the cases I am about to narrate. In

my concluding remarks of the same paper I said, "1st. That intra-uterine tumours of the non-pedunculated form may be destroyed by a surgical operation, viz., by cutting into and destroying a portion of their tissue; in other words, by gouging a portion out." "2nd. That this operation may be performed successfully and safely. Out of the dozen or more cases in which I have practised it, I have lost but the one which I have narrated in the present paper—a circumstance explicable as an accident." "3rd. That the preliminary division of the os and cervix uteri, in order to reach the internal tumour, has in itself the very important advantage of nearly or quite arresting the uterine hæmorrhage, which is the most serious symptom attendant on uterine tumours."

Since the reading of this paper, some hundreds of professional men have witnessed my public practice at "The London Surgical Home;" and one gentleman, Dr. Routh, has lately stated in his 'Lettsomian Lectures' that he has successfully adopted the practice. My friend Dr. Dawson, of Newcastle-on-Tyne, has done the same.

My object in bringing this subject before the Society for the third time is to confirm by fourteen cases my previous good results, and, at the same time, to show that I have modified my surgical treatment; for whereas I uniformly divided my operative treatment into two parts, viz.— 1st, preliminary incision of os and cervix; and 2nd, the gouging or breaking up of the tumour; I now find, by increased experience, that the first step is frequently all-sufficient; and that even when gouging is required, a less severe operation than that previously adopted is effectual; and that, consequently, I never now use "Harper's instruments," but simply a pair of blunt-pointed scissors, finding that the slightest destruction of the capsule of the tumour is enough to ensure its disintegration.

I have been much gratified to find that Dr. M'Clintock, in his admirable memoir 'On Diseases of Women,' has confirmed the truth of my proposition, "that incision of the os and cervix does arrest the hæmorrhage so frequently attending

these fibrous tumours," and he gives two illustrative cases in his own practice.

Mode of Operation.—Let me draw the particular attention of the Fellows of this Society to the mode of performing the different steps of the operation, as on it I lay great stress both as to efficiency and safety.

Firstly, as to incising the os and cervix. The patient having been placed in the lithotomy position, the perinæum is well depressed by an assistant, by means of Bozeman's speculum. The anterior lip of the os uteri is then seized by a pair of vulsellum forceps, and held by the left hand of the operator, who then introduces the hysterotome, and, whilst firmly holding the forceps to the left side, cuts the os and cervix laterally to the right. Then reversing the hands, he holds the forceps towards the right side, and cuts out towards the left. The cut surfaces are then plugged with oiled lint, and the vagina also thoroughly filled with lint or cotton wool, so as to ensure most perfect pressure and exclusion of atmosphere.

When this last stage is well carried out, there is never any serious hæmorrhage; but, on the contrary, an unequal or inefficient plugging is often followed by hæmorrhage, which may become in itself dangerous, or may be followed by inflammation of the uterus, and even peritoneum.

Hence it will be seen that the risk of this part of the operation is materially lessened by careful attention to the above directions.

Secondly.—Where it is considered advisable to perform the second step of the operation, viz., gouging the tumour (which should not be done *sooner* than a fortnight after incision of the os and cervix), the patient is again placed in the lithotomy position; the index-finger of the left hand of the operator is inserted within the inner os, and a pair of long-handled, blunt-pointed, curved scissors are passed up to the tumour, and gently pressed through the capsule; the blades are then so opened as to break up the tumour. It is not necessary or advisable to break up much. Oiled lint is then

passed into the opening thus made by the scissors, by means of a uterine sound, and the whole vagina thoroughly plugged, as previously described. These dressings should not be removed under forty-eight hours, and, when removed, the vagina should be well syringed out twice a day with a lotion made of Condy's fluid, in the proportion of two drachms of the fluid to half a pint of water.

An opiate is administered to the patient by the rectum, a bland milk diet given, the most perfect rest and quiet enforced, and the urine drawn off every six hours by the nurse.

As I have already said, increased experience has proved to me that this second operation is frequently not required, for that incision of the os and cervix not only stops the hæmorrhage, but also arrests the development of the tumour; in some cases the tumour decreases, and when small it will often entirely disappear. This last fact is more particularly proved where the tumours are of recent origin.

This is of great practical importance, and should induce us to wait for the full benefits of the first before we proceed to the second operation; and, indeed, unless the tumour be sufficiently large to interfere with the functions of the bladder, bowel, or uterus, and presuming that the hæmorrhage has ceased, I would never advise any further surgical interference, but I do recommend that a steady medical treatment should be pursued, especially the use of the bichloride of mercury and bromide of ammonium, having often seen the tumour go on decreasing, and even undergo the process of calcification so well described by Rokitansky.

Case 1.—*Two fibrous tumours in the cervix; incision; cure.*

History.—Mrs. D—, æt. 38, married fourteen years, with one child. About three years ago began to suffer from profuse menses, occurring every three weeks, accompanied by headache, dyspnœa, and loss of appetite and sleep. Bowels constipated.

On examination.—Two bean-shaped fibrous tumours were found situated within the cervix uteri.

Operation, February 7th, 1861.—Os and cervix uteri incised with the hysterotome.

Remarks.—After this operation the tumours gradually decreased, and finally disappeared. She menstruated regularly, and on March 10th was discharged perfectly well. She has since had no return of the hæmorrhage, and remains quite well.

Case 2.—*A large intra-uterine fibrous tumour; hæmorrhage; incision; cure.*

History.—J. S—, æt. 47. Twelve years a widow; has two children, the youngest born thirty years ago. First perceived a tumour about three years ago, giving rise to floodings at the catamenial periods, and causing pain in the back and loins, and also in defecation and micturition.

On examination.—There was found a large intra-uterine fibrous tumour, and, likewise, a small bean-like polypus just within the os.

Operation, June 21st, 1861.—Os and cervix incised on each side of the polypus, to stop the hæmorrhagic flows.

Remarks.—Menses appeared on July 3rd, and stopped on the 6th. They were normal in quantity. Before the operation menstruation had lasted seven or eight days. She improved very much in health, and left perfectly well; she has continued so up to the present time.

This case well illustrates the success of the first step of my operation, and which being all-sufficient to arrest the hæmorrhage, it was not considered necessary to interfere further with the intra-uterine tumours.

Case 3.—*Large intra-uterine fibrous tumour; hæmorrhage; incision; cure.*

History.—S. S—, æt. 38; married. Two years ago felt pain on the right side, and flooded immediately after each catamenial period. Menses regular in time of appearance.

On examination.—There was found a large intra-uterine fibrous tumour.

Operation, August 29th, 1861.—Os and cervix incised with hysterotome.

Remarks.—After the operation the floodings entirely ceased, and the tumour has not caused her any inconvenience since. Here, again, the second operation was not necessary, as the patient steadily improved in health after the cessation of the hæmorrhage.

Case 4.—*Large intra-uterine fibrous tumour; hæmorrhage; incision; cure.*

History.—Mrs. W—, æt. 35; married thirteen months; without children. Has had pain, and noticed increase in size for the last nine months. Menstruation every fortnight, with fearful flooding, bringing her down to a state of extreme weakness.

On examination.—There was found a large fibrous tumour occupying the uterus.

Operation, December 5th, 1861.—Os incised with hysterotome.

Remarks.—The tumour gradually diminished in size, and menstruation became regular in quantity and duration. In January, 1863, writes, saying "that she has never been so well for fifteen years; that she can walk about all day, and do every household duty."

This case illustrates, not only the cessation of the hæmorrhage from incising the os and cervix, but also shows that the tumour gradually diminishes. This case was seen and carefully examined by Dr. Routh, Dr. Rogers, and other gentlemen; and I have had an opportunity during the last autumn of seeing this lady, and therefore know that she is quite well, and frequently walks all day with her husband over the fields after game.

Case 5.—*Large intra-uterine fibrous tumour; severe hæmorrhage; incision and gouging; cure.*

History.—H. R—, æt. 38; unmarried. A year ago began to lose a great deal at each menstrual period, the quantity

increasing each month. Abdomen has been enlarging gradually. For the last six months flooding almost constant. Is very weak, and in a state of extreme anæmia.

On examination.—There was found an intra-uterine fibrous tumour, as large as the head of a nine-months' child. The os very high up.

Operation, February 27th, 1862.—Os and cervix incised. March 27th, tumour broken up.

Remarks.—After the first operation the hæmorrhage stopped. After the second there was a very offensive thick discharge from the vagina, and the tumour gradually diminished. She was discharged, cured, April 21st. This case well illustrates the complete operation, and shows that where the tumour is so large it is better to break it up. It will be seen that I allowed a month to elapse before performing the second operation; the rapid solution of the tumour is also very remarkable.

Case 6.—*Large intra-uterine fibrous tumour; severe hæmorrhage; complete operation; cure.*

History.—H. J—, æt. 50; unmarried. Always menstruated regularly. Five years ago the menses increased in quantity and duration. For the last twelve months they have been very excessive, constituting serious floodings. Has increased in size; had a small polypus uteri removed two months ago.

On examination.—There was found a large intra-uterine fibrous tumour.

Operation, February 27th, 1862.—Os and cervix uteri incised. March 20th, tumour broken up.

Remarks.—The tumour gradually decreased, menstruation became normal, and she left quite well on May 13th.

Case 7.—*Two intra-uterine fibrous tumours; incision; cure.*

History.—E. H—, æt. 37. Married fourteen years; eight miscarriages; five children, three still living. Last miscarriage three years and a half ago. Two years ago began to have pain in left side. Menstruation irregular for last several

years; sometimes ten days, sometimes six or eight weeks, between each period. Great pain in defecation, with sense of bearing down.

On examination.—There were two fibrous tumours, one just inside the neck, the other further up the uterus, about the size of walnuts.

Operation, March 27th, 1862.—Os and cervix incised.

Remarks.—There was great hæmorrhage after the operation, but she did well; on examination, a month afterwards, no tumour could be discovered. April 28th, left quite well.

This severe hæmorrhage is an exception to the rule, but I believe that the rapid disappearance of the tumours was in great measure due to the great loss of blood.

Case 8.—*Small intra-uterine fibrous tumour; severe hæmorrhage; incision; cure.*

History.—E. G—, æt. 32, unmarried. Menstruation has been irregular for many years, losing immense quantities, going on for nine months, almost without cessation.

On examination.—There was found a small fibrous tumour in the walls of uterus.

Operation, March 20th, 1862.—Os and cervix incised.

Remarks.—Six weeks afterwards the tumour had entirely disappeared, and menstruation was quite regular.

April, 1863.—Has married lately, and is in good health.

Case 9.—*Large intra-uterine fibrous tumour; hæmorrhage; incision; peritonitis; death; autopsy.*

History.—J. K—, æt. 59, single. Twelve years ago first noticed slight swelling at lower part of abdomen, with increase of catamenial fluid; five years ago the menses became more frequent. The tumour has increased rapidly. Suffers from constipation, irritability of the bladder, &c. Is in a state of great anæmia.

On examination.—There was found a large intra-uterine fibrous tumour, the os very high up, and hymen perfect.

Operation, April 11th, 1862.—Os and cervix incised.

Remarks.—This patient was very troublesome, getting out of bed, opening her window, &c.

She caught cold and died on the ninth day.

Autopsy.—Showed peritonitis and uterine congestion. The tumour weighed 10 lbs. 5 oz., and there were several small tumours outside the uterus.

The fatal result of this case can be hardly attributed to the operation, as the patient broke through the fundamental rule of perfect rest and quiet, independently of exposure to damp and cold.

Case 10.—*Large intra-uterine fibrous tumour and polypus; incision, &c.; pyæmia; death.*

History.—A. R—, æt. 49. Single. Began a year ago to suffer from excessive menstruation, occurring every three weeks, and lasting a week. For eight years has passed clots at these periods. Only first perceived a tumour three weeks ago.

On examination.—There was discovered a large fibrous tumour within the uterus, and also a small polypus growing from the os.

Operation, May 15th, 1862.—Os and cervix incised and polypus cut off.

Remarks.—This patient never did well. She had abscesses in the armpit and knee, and died of pyæmia on the tenth day.

It is a practical question whether the pyæmia was not caused by absorption of purulent matter into the cut vessels of the polypus. At all events, in another case I should leave the polypus alone, believing that it would die after the incision of the os and cervix.

Case 11.—*Large intra-uterine fibrous tumours; incision; relief.*

History.—S. R—, æt. 54. Married, and had five children and two miscarriages. Suffered from prolapse of the uterus and painful micturition five years ago. Till five months since

menstruation has always been excessive. Feeling of weight in abdomen, &c.

On examination.—There was found a large intra-uterine fibrous tumour.

Operation, May 15th, 1862.—Os and cervix incised.

Remarks.—This patient was much relieved, the menstruation becoming more regular, the tumour, however, not decreasing. Still, as the health was improved and the hæmorrhage had been checked, I did not consider it advisable to take further proceedings.

Case 12.—*Large intra-uterine fibrous tumour; irregular menstruation; incision; cure.*

History.—R. K—, married three years. Had one child two years ago. Six months ago menstruated for a whole month. Then missed for more than six weeks, when the flow reappeared and continued for eight weeks. Has noticed a swelling for two months.

On examination.—There was found an intra-uterine fibrous tumour as large as a cricket-ball, growing from the posterior wall, and slightly movable. Os patulous.

Operation, May 15th, 1862.—Os and cervix uteri incised.

Remarks.—June 30th, discharged quite well. The tumour diminished, and menstruation has since been quite regular in time and quantity.

Case 13.—*Large intra-uterine fibrous tumour; incision; death; autopsy.*

History.—A. M—, æt. 41, single. Has had constant leucorrhœa for two years. Monthly epochs irregular, and menstrual flow very excessive, the blood rushing away in gushes, with clots. Health very failing.

On examination.—There was found a very large fibrous tumour of the uterus, with a very patulous os.

Operation, July 17th, 1862.—Os and cervix incised.

Remarks.—Had a rigor on the fourth day, and died by gradual sinking on the ninth day.

Autopsy.—Showed no symptoms of pyæmia; the spleen was diseased, there was a nutmeg liver, and a semi-organized clot in the heart and in several veins.

The death of the patient cannot be fairly attributed to the operation, but to organic disease.

Case 14.—*Large intra-uterine fibrous tumour; incision; cure.*

History.—M. A—, æt. 35, single. Has always menstruated profusely, and lately the blood has frequently rushed from her.

On examination.—A large fibrous tumour of the uterus was found. Os patulous.

Operation, July 17th, 1862.—Os and cervix incised.

Remarks.—Menstruated twelve days after operation. It only lasted two days, and was normal in quantity. The tumour has diminished, and she is quite well.

All the above cases have occurred in the "London Surgical Home." The number might be increased very largely, both from my public and private practice.

Of these fourteen now given, it will be seen that ten were cured of the hæmorrhage by incision alone, and one relieved.

In two only was it necessary to perform the second step of the operation, both resulting in cure of the tumour. In six cases the tumour either entirely disappeared or materially decreased after incision alone.

Of the three deaths, two at all events cannot be attributed to the operation *per se*; of the third, the cause was pyæmia.

Of the cases occurring in my private practice, numbering between twenty and thirty, I have only had one death from pyæmia, in a case complicated with hæmatocele. In my public practice I had as many more as have here been given, but had no more deaths.

The conclusions to be drawn from the paper are—

1*stly*. That the fact of the curability of these tumours is materially confirmed by these new cases.

2ndly. That it is not necessary in many cases to do more than incise the os and cervix, thereby much lessening the danger of the operation.

3rdly. That the hæmorrhage is almost invariably arrested by the incision of the os and cervix.

4thly. That the cure of these fibrous or fibroid tumours is now fairly established, as proved by the experience of Dr. M'Clintock, Dr. Routh, Dr. Dawson, of Newcastle-on-Tyne, &c., as well as by myself, by surgical means, without the danger of enucleation.

Dr. Gervis wished to know from Mr. Brown whether the incisions he made in the sides of the cervix uteri were ever apt to reunite; whether, if they did, the hæmorrhage recurred; and whether, if they did not, the incised condition of the cervix, in a patient who subsequently became pregnant, in any way interfered with normal parturition.

Dr. Routh stated the paper of Mr. Brown was most valuable as another evidence of the advancement of medical science in the treatment of a disease previously, in many cases, deemed incurable. Years ago, in 1845, Dr. Atlee had pointed out that certain fibroids of the uterus could be removed by enucleation, and that others by partial enucleation only would disappear after a time, a sloughing process being thereby brought about in them, which led to their destruction. His proceedings were, however, too hazardous for many European surgeons, and it was known that many cases had died under treatment in Great Britain, although they were not published. This was a pity, as it was only by a correct statement of successful as well as unsuccessful cases that the benefit of any plan of treatment could be tested. Mr. Brown had acted more nobly. All his unsuccessful cases were published as well as the successful. The London Home was open and free to every medical inquirer. He, Dr. R., had seen several of Mr. Brown's cases, and through his kindness had seen all his notes of others.

He believed that fibroid tumours of the uterus, whether they were out of the pelvis or within it, required different treatment. But *neither* should be meddled with except vital functions were interfered with—above the pelvis, if the heart or lungs were pressed against; below the pelvis, if the defecation and micturition were interfered with; or in both cases, if the losses of blood were excessive and otherwise irremediable. But the operation of Mr. B. could not often be safely practised in supra-pelvic tumours,

because, if the finger could not give proper indications, you might mistake the side on which the wall was fibroid, and cut through into the peritoneum, as had occurred in one case he knew of. The operation for such tumours, and especially if fibro-cystic, was gastrotomy, and in these cases it was best to remove veins as well as arteries, because risk of hæmorrhage from a ligature on the cervix or vagina was so much less.

In regard to pelvic fibroids of the uterus, Mr. Brown had shown incontestably that a tumour, if cut through, would gradually absorb away. In two cases before recorded the tumours were partly projecting out of the os, and could be seen and felt quite distinctly. Now, ocular inspection in these showed that, after complete bisection, the tumours being left *in situ*, they disappeared altogether. The practice was therefore established to be proper in other cases, although the tumours were not visible. The opening of the os, as a preliminary step, both because it checked bleeding and enabled the operator to get more readily at the tumour, was wise, and, under the restrictions laid down by Mr. Brown, quite safe. He (Dr. Routh) invariably practised it.

Mr. Brown had not alluded to pedunculated fibroids, which, situated in the pelvis, might affect defecation and micturition equally with parietal or intra-uterine fibroids. In these cases hæmorrhage was very rare, but in which it was clear the incision of the os could do no good. Here the tumour should be directly cut into, the preliminary measure being first to cut down to it, either by the knife or caustic, through the vagina; and, when the parts had healed, precautions being made to keep the wound open, the tumour should be cut into. Dr. Oldham, in these cases, recommended gradual pushing up of the tumour and he (Dr. Routh) was sorry Dr. Oldham was not then present to give the Society the benefit of his large experience. Dr. Routh had not generally tried this plan, as in the few cases in which he had known it to be practised it had either failed or given rise to peritonitis and death. Perhaps the error lay in the operators, who might not be as expert as Dr. Oldham, but the knowledge of these accidents had precluded him from trying this method in cases where the tumour appeared to be fixed in the pelvic cavity.

Dr. Greenhalgh remarked that the frequency of fibroid and fibrous tumours of the uterus rendered this subject one of the greatest importance to the practitioner, especially in those cases in which the hæmorrhage is so profuse as to endanger the life of the patient.

He stated that in the great majority of cases he had found the best results from the administration of corrosive sublimate or bromide of potassium and the cold douche; still, he must admit that there are a certain limited class of cases in which medicines were of little or of no avail, and it was in such cases that the

division of the cervix was attended with benefit. He said that his experience of such practice in these affections was limited to three cases, in which, although the hæmorrhage was considerably lessened, he had not found that this operation had been followed by the disappearance of the morbid condition of the uterus. He had in one case, where the tissues were extremely vascular, used the actual cautery with good effect.

He added that, in cases where the enlarged fibroid uterus or fibrous tumours filled up the cavity of the pelvis, occasioning injurious pressure upon the surrounding parts, and were movable, he had observed good results from raising them out of that canal into the abdomen, and retaining them in that position by an inflated air pessary introduced into the vagina.

Dr. Greenhalgh concluded his observations by asking Mr. Brown whether he was guided by any other rule than the profuseness of the hæmorrhage in recommending the division of the os and cervix uteri.

Mr. Brown, in reply to Dr. Gervis, stated that care was taken to prevent the incisions in the os and cervix from uniting. The oiled lint, in the first instance, and the injections afterwards, generally prevented union; but if any bands of lymph were thrown out, he always broke them down with the finger. He had never seen a case in which the patient had been confined after the operation, but it was only reasonable to infer that parturition would be accelerated after these incisions; for in the case of a primiparous woman, where the os is torn, the subsequent labours are always exceedingly quick. As to the *rationale* of the operation, Mr. Brown had avoided the question for fear of giving too wide a field for discussion. He thought the action was twofold. The tumours were of very low vitality, and the slightest interference with them stopped their growth. Thus, in the first place, the initiatory blood-vessels were cut through by incising the os and cervix; and, secondly, the tumour was grasped more firmly by the contraction of the uterus, which always takes place after the os is incised; and thus the tumour was confined, could not grow, and often died. He was obliged to Dr. Routh for alluding to the authenticity of his (Mr. Brown's) cases, as some doubt had on more than one occasion been thrown on the subject. He could only repeat that his practice at the London Surgical Home was open to every member of the profession.

He had not alluded to extra-uterine fibrous tumours, as he had wished his remarks and the discussions this evening to be compared to the intra-uterine, and, indeed, it was hardly necessary to do so, for he doubted if he could add anything to what Dr. Routh had given in his Letsomian Lectures.

When the tumour is high up and does not interfere with the pelvic viscera, he made it a rule not to interfere. He quite agreed with Dr. Greenhalgh, that there were some cases which might be

cured by remedial measures without recourse to surgery. He had only given cases where severe hæmorrhage was present as the most urgent symptom, and in almost all cases which came to him the patients had been previously treated without success.

He, however, always advised a steady medical treatment after the operation, as had been recommended in his paper.

ON SOME CASES OF OVARIOTOMY, WITH REMARKS.

By Thomas Bryant, F.R.C.S.,
ASSISTANT-SURGEON TO GUY'S HOSPITAL.

I have been induced to bring the following cases of Ovariotomy before the notice of the Fellows of this Society from the feeling that it is the duty of every surgeon who has had any experience on the subject to make it known to his professional brethren, and thus help to clear away the prejudices or confirm the convictions with which the question of ovariotomy is still regarded by two opposite parties in the profession. But, at the same time, a second motive has not been without its power, and that is to prove the fallacy of the assertion which has been so boldly made, that it is not possible to secure, in the large and general hospitals of this metropolis, the hygienic and special conditions which are deemed necessary to secure success in such operations.

I believe the fallacy of this opinion will be fairly proved by the success which the following cases illustrate, and the cases themselves will show what precautions were considered requisite to secure a favorable result.

I proceed, without further remark, to narrate the cases themselves, merely adding that they are the only examples which have been under my care.

Case 1.—*Multilocular ovarian tumour; ovariotomy; fatal result on fourth day.*

Mary C—, a married woman, æt. 30, was admitted

into Guy's Hospital in the autumn of 1860, with an ovarian tumour of two years' growth. She was a cachectic-looking woman, although she had always enjoyed good health up to the time of the first appearance of the present malady. She had been married eight years, but never been pregnant. The disease was detected accidentally two years before her admission, the tumour apparently growing from the right side; its growth had been tolerably gradual on the whole, although, for the last eight months, it had been more rapid. When first admitted into Guy's Hospital, under the care of Dr. Braxton Hicks, a very solid multilocular ovarian tumour was readily diagnosed; but, as it then caused her little inconvenience, and was not very large, all operative interference was rightly postponed. She consequently left the hospital, but in three months was again admitted, the tumour having in this interval rapidly increased, and extended high up into the left side; the abdomen was tense and fluctuating, the solid mass of tumour being apparently pushed high up from the rapid development of some large parent cyst.

Under these circumstances it was tolerably certain that life could not long be sustained by any temporising treatment, and, with the view of a capital operation, Mr. Thomas Bryant was consulted.

It should be added that a careful vaginal examination afforded no contra-indication to such a practice.

The desirability of an attempt at the removal having been decided on by Dr. Hicks and Mr. Bryant, Dr. Oldham also concurring in the opinion, the advantages and risks of the operation were then fairly laid before the patient, and, without any hesitation, her consent was procured. She was therefore removed to a private ward, and isolated, as far as possible, from all injurious influences, and on December 5th, 1860, the operation was performed. The patient, having been brought under the full influence of chloroform, was placed in a recumbent posture, with the shoulders well raised. Mr. Bryant then made his incision, commencing one inch beneath the umbilicus, down to the

pubes, about seven inches in length. Having exposed the tumour, the lower cyst was tapped, and through this many secondary cysts were also opened. The tumour, being thus readily lessened in size, easily escaped from the abdominal cavity, the hands of an assistant carefully following up the tumour, and preventing the escape of the intestines; a broad pedicle was then found to exist, and this was temporarily compressed by the ordinary clamp, after which a double ligature was passed through the pedicle, beneath the clamp, and the whole tied in two portions. A few vessels had to be tied at the point at which the pedicle had been transfixed. The wound was subsequently closed by three long harelip pins, two being passed above and one below the pedicle, which it transfixed, and the woman placed in bed. Opium was freely given, with apparently a good effect, for forty-five hours, when vomiting and tympanitis appeared. The pulse became small, quick, and thready, and the skin bathed in perspiration; rapid exhaustion followed, and death took place about seventy-eight hours after the operation. After death a low kind of peritonitis was found to exist, but nothing else to account for the fatal result.

Case 2.—*Unilocular ovarian tumour, of two and a half years' duration; ovariotomy; recovery.*

(Reported by Mr. Cleveland Smith.)

Ellen D—, æt. 32, was admitted into Mary Ward, on July 30th, 1862, under the care of Dr. Oldham and Mr. Bryant. She was a resident of Hull, married, had had three children, the youngest being three years old, and had always enjoyed good health.

Two and a half years before admission she observed that her abdomen was larger than natural on the right side, but this swelling was unattended by any other symptom of disease, and the catamenia continued regular till November, 1861, but since that date they ceased.

On admission the abdomen was enormously distended, apparently from a single cyst. All the viscera appeared to be sound.

On August 1st paracentesis abdominis was performed, and ninety pints of a dark fluid drawn off. Immediate relief followed the operation, from which she soon rallied, and left the hospital on the 15th of the same month.

During her stay, however, the subject of the removal of the tumour had been laid before her, and, as the fluid began rapidly to re-collect, she readily assented to the performance of an operation, and for this purpose was readmitted on the 29th of September. At this period, hardly two months after the date of her first tapping, her abdomen was as large as ever; no tenderness was to be observed; her general health was good, and she had fully made up her mind to submit to the operation. Both Dr. Oldham and Mr. Bryant believed the case to be a good one for such an attempt, and fully explained to the patient the chances of success on the one hand, and the certainty of an early death on the other if temporising measures were alone adopted, and she wisely consented to the means which were carried out.

She was accordingly removed to a private room over the clinical ward, and was placed in charge of an experienced nurse. All admission to any person or student who was not absolutely required for her care and treatment was strictly prohibited, as it was Mr. Bryant's wish that every influence should be excluded which might possibly prove injurious, and he was therefore anxious to place her as much as circumstances would allow in the position of a private patient.

On October 15th, at 2 p.m., the operation was performed by Mr. Bryant, assisted by Drs. Oldham and Hicks, and Mr. Cooper Forster. The house-surgeon, two dressers and ward clerks, and two visitors, were also present. Chloroform was given, and the patient was placed on a table in a semi-recumbent position, the legs being supported on a chair.

An incision about eight inches long was made beneath the umbilicus down to the cyst-wall, and a trocar and canula introduced. It was then discovered that the cyst-wall was firmly adherent to the abdominal wall, and some care was required in separating the two. This was done by Mr. Bryant

introducing his hand carefully over the cyst-wall, and tearing them away, having previously with a pair of claw forceps laid hold of the cyst-wall, steady traction being made upon it for its removal with the right hand whilst the adhesions were broken down with the left. A large piece of omentum, which was torn off the cyst wall, had to be tied on account of the fear of hæmorrhage, and this was left in the wound. The cyst then turned out very readily, and the pedicle, which was narrow, was secured by an ordinary clamp. The tumour was then excised. It was needful to apply one ligature to a small bleeding point, as well as sponge away the blood which appeared on the surface of the intestines at the wound's margin, but it was not deemed advisable to sponge out the pelvis or to manipulate the intestines more than was absolutely necessary. The peritoneal wall, which had been adherent to the cyst, was very vascular, and from this it was feared that some hæmorrhage might subsequently take place. The edges of the wound and the peritoneum were then brought together by wire sutures, and the clamp secured, a piece of lint only being gently laid over the wound. It so happened that the pedicle was tolerably long, and that therefore there was but little traction made upon the pelvic organs. During the operation there was some sickness from the chloroform, and subsequent collapse, but this rapidly disappeared.

The woman was then removed to bed, when she recovered quickly from the influence of chloroform. At 5 p.m. her skin was cool and moist, pulse 88. 10 p.m.—Pulse 100, skin bathed in a clammy sweat; she was very restless; some vomiting had also occurred. Soda water and brandy were given, with ice to suck.

October 16th, 3 a.m.—Vomiting has quite ceased. Pulse 105, and bounding; she was restless, and felt disposed to sleep, but could not; fifteen minims of the tincture of opium were given, and she slept for two hours.

17th, 10 a.m.—Passed a good night; pulse 100; skin cool and moist; has passed a good deal of wind; the clamp was now removed, forty-eight hours having expired since the operation, a portion of sloughing omentum removed, and a

vessel which burst out bleeding from the stump tied; the edges of the wound had united. Wine ʒiv ordered.

18th.—Slough separating from pedicle; in all respects she is doing well; has taken plenty of liquid nourishment with appetite.

20th.—Passed a somewhat restless night; bowels freely relieved, a warm-water enema being given to assist their action. Wine ʒvj, and chicken for dinner.

24th.—Four of the sutures were removed; wound has nearly healed.

25th.—The remaining sutures were taken away; the mass of omentum which was left external to the wound was rapidly contracting and wasting away.

27th.—Has had her bed changed to-day, and sat up in it without inconvenience.

November 1st.—Was able to walk about, and on the 15th, only one month after the operation, she left the hospital, convalescent.

This patient has since been heard of, and was safely confined of a healthy female child about November 25th, 1863, having, however, endured considerable pain from urinary irritation for some months previously.

Case 3.—*Unilocular ovarian tumour; ovariotomy; recovery.*

(Reported by G. P. Wilks, M.B., M.S. Cantab.)

Ann G—, æt. 25, a single woman, a resident of Swansea, was admitted into Guy's Hospital, in February, 1863, under the care of Dr. Oldham and Mr. Bryant, with an ovarian tumour, which was apparently growing from the left side.

She first menstruated at the age of nineteen, but the catamenia were always irregular.

The tumour was first observed four years ago, in the left side, and was the cause of some pain. It enlarged gradually until November last, when she was admitted into the Swansea Infirmary, and was there tapped, ten quarts of fluid being drawn off. She was much relieved by this operation for a time, but the cyst gradually refilled, and when admitted into

Guy's, scarcely two months after the tapping, the tumour was as large as ever. On admission she was apparently in good health; having a fresh colour, and all the external appearances of a healthy woman. It was elicited, however, that she had been the subject of several attacks of bronchitis, one or two having been very severe. The abdomen was large and flaccid, measuring thirty-six inches in circumference. Fluctuation was very distinct, and the tumour was composed apparently of one cyst. The vagina and uterus appeared to be healthy, and were quite free from all abnormal attachments. On the whole, the case promised well for operation.

On March 20th Mr. Bryant performed the operation of ovariotomy, in the presence of Drs. Oldham and Braxton Hicks, who, with Mr. Cooper Forster, kindly assisted. The operation was undertaken in a private room, and only such students were admitted as were required to assist, or who were acting as dressers and clerks to the case. It was a very simple one. An incision five inches long was made, the cyst tapped, and the tumour readily removed from the abdominal cavity. A piece of omentum, which was firmly adherent, was ligatured in two places and divided, the pedicle, which was small, being fixed by means of the clamp. The edges of the wound were then brought together with wire sutures, the peritoneum being included, and water dressing applied.

Some slight vomiting followed the operation, most probably due to the chloroform, and in the evening she began to cough. Ice and milk were ordered, with effervescing mixture.

March 21st.—Had a quiet night. Pulse 100. Is in no pain. Cough, however, somewhat troublesome, attended with a mucous expectoration.

22nd.—Slept at intervals during the night, but was disturbed by her cough. No abdominal pain nor distension. Wound looks healthy. Beef tea, bread and milk, ordered.

24th.—As far as the operation goes, nothing could look better. Her bronchitis is still, however, about the same. Fish and eggs ordered.

25th.—The clamp and three of the sutures were removed to-day. Wound nearly closed.

26th.—Going on well. Mutton chop.

28th.—Catamenia appeared this morning, but without giving rise to any disturbance. Appetite good; bowels relieved; cough somewhat better.

The wound has quite healed, with the exception of the small piece of omentum which was left outside. By April 10th, however, this had contracted, and, as far as the operation was concerned, she was pronounced cured.

Her cough was, however, very troublesome, and she was transferred into a medical ward under the care of Dr. Gull. Her chest symptoms varied from day to day, expectoration being at times very profuse and fetid. Gangrenous pneumonia at last set in, and carried her off on May 21st.

Case 4.—*Ovarian dropsy of both ovaries; ovariotomy; fatal result.*

Emma C—, æt. 32, a married woman, with one child, was admitted into Guy's Hospital, on April 10th, 1863, under the care of Dr. Oldham and Mr. Bryant. She was a healthy looking woman, who appeared free from any other organic disease. The tumour was first observed, two years before her admission, on the left side; its growth was gradual, and was unattended with pain, but in November, 1862, she became so large as to require tapping, when twenty-three quarts of a coffee-like fluid was withdrawn. She soon, however, refilled, and when admitted her abdomen measured forty-eight inches in circumference. A vaginal examination was made with great care, and the uterus found to be quite free, but a tumour evidently existed behind it in the pelvis.

The patient, having made up her mind to submit to the operation, was removed into a private room, and on April 15th ovariotomy was performed by Mr. Bryant.

The operation was one of great difficulty, extensive adhesions firmly fixing the cyst to the abdominal walls, as well as to the viscera, including the stomach, liver, omentum, and bladder. The removal was, however, at last accomplished, and the pedicle of the large cyst fixed by thin whipcord ligatures, pieces of omentum being also tied and divided

during the operation. The right ovary was then examined, and found to be diseased, the tumour resting in the pelvis behind the uterus; this was also removed, and its pedicle fastened by two ligatures.

The edges of the wound were brought together with silver sutures, and the patient was placed in bed. She slept after the operation, but awoke very feeble. Sickness soon set in, followed by collapse and a gradual sinking, and the patient died twenty-two hours after the operation.

After death an examination revealed the existence of acute peritonitis. The viscera were otherwise healthy.

Case 5.—*Semisolid ovarian tumour; ovariotomy; death in thirty-seven hours.*

Julia P—, a married woman, æt. 44, was admitted into Guy's Hospital, on July 1st, 1863, under the care of Dr. Braxton Hicks and Mr. Bryant. She had been the subject of the disease for some years, and its increase had been somewhat gradual. She had been tapped once, but only a little thick tenacious fluid was drawn off. The case was by no means a favorable one for operation, as the patient's health had materially suffered, yet there were no pelvic conditions which militated against the attempt.

On July 25th the operation was performed in a private room by Mr. Bryant, with the assistance of Drs. Oldham and Hicks. The small incision was made, and the pedicle, which was a broad one, secured with thin whipcord ligatures. The tumour, when removed, was found to be of the colloid nature; there were no adhesions. Symptoms of peritonitis speedily set in, and death followed in thirty-seven hours.

After death the usual appearances of peritonitis were visible, but nothing else worthy of record. The viscera were healthy.

Case 6.—*Multilocular ovarian tumour; ovariotomy; recovery.*

(Reported by Mr. Chauncey Puzey.)

Lucy W—, æt. 17, residing at North Brixton, was sent to Mr. Bryant by Mr. T. O. Duke, of Kennington, under whose

care she had been for ovarian dropsy, with the view of some capital operation being performed. She was a remarkably healthy looking girl, the member of a healthy family, and had enjoyed good health till one year previously, when she began to feel pain in her right side, which was aggravated by exercise. A swelling at the part soon made its appearance, which gradually increased, and when coming under observation her abdomen was as large as that of a woman nine months gone in pregnancy. The catamenia had appeared at the age of thirteen, and had been quite regular ever since. Her general health was also good. Some swelling of the legs had, however, existed towards night for the last few months.

The girl was admitted into Guy's Hospital, into Mary Ward, on July 18th, 1863, under the care of Dr. Oldham and Mr. Bryant, when a careful examination of the tumour was made. The abdomen was tense and fully distended, measuring thirty-six inches in circumference. The ovarian tumour was apparently polycystic and somewhat solid, fluctuation not being very distinct. A pelvic examination also revealed a complete mobility of the uterus. Under these circumstances the question of operation was discussed, and, all things being apparently favorable for extirpation, the risks of the case were fairly laid before the patient and her friends, who readily assented to its removal.

On September 8th, at 1.30 p.m., the girl having been moved into a private room, the operation was performed, a few visitors only being admitted, Drs. Oldham and Hicks, with Mr. Cooper Forster, kindly assisting. The patient being under the influence of chloroform, Mr. Bryant commenced the operation by making an incision from the umbilicus downwards to the pubes, of about six inches in length, and on opening the peritoneum some ascitic fluid escaped. The tumour was then tapped, and some thick, gelatinous fluid drawn off; but as the size of the tumour was but little diminished by this step, two or three other cysts were subsequently opened, the contents of which were, however, more limpid. The cyst-wall during this time was firmly held by means of a pair of vulsellum forceps, by which steady

traction was applied, the hands of an assistant, placed over the abdominal walls, following up the tumour as it escaped from the abdomen. The cyst readily turned out, no single adhesion being present. The intestines were also well secured from view.

The pedicle was found to be a broad one, and at its base a mass of enlarged veins were visible. To this three whipcord ligatures were applied, but, it should be noted, to the distal side of the large veins, which were consequently left untouched, and the tumour was excised; the wound was then brought together by means of four deep wire sutures, which were passed through the peritoneum, and one through the pedicle; the introduction of several superficial sutures finishing the operation. Ten grains of the compound soap pill were then introduced as a suppository, and the patient placed in bed.

It should be remarked that the hand of the operator in this case scarcely touched the peritoneum, all exploratory examinations for adhesions having been dispensed with.

The tumour, when removed, weighed sixteen pounds, and, as already stated, was polycystic.

10 p.m.—The patient vomited for the first time since the operation; a second suppository was given to relieve the pain, which existed, and with benefit. Pulse 112. Ice ordered to suck.

9th, 9 a.m.—Vomiting still continues, but between the attacks the patient dozes. Abdomen flat and flaccid, but tender. Pulse 120. Skin hot. 2 p.m.—No vomiting since the last report; otherwise the same. Suppository to be repeated at night. 7 p.m.—The patient is still under the influence of opium, and has had a good sleep; in every respect is most comfortable.

10th, 9 a.m.—Has passed a good night and is free from pain; abdomen in the same condition. Pulse 110, of good power. 2 p.m.—Has taken some arrowroot with relish. The suppository to be repeated at night as usual.

11th.—Going on well; free from all pain.

12th.—Upper two thirds of the wound have apparently united. Pedicle sloughing. Beef tea ordered.

14th.—The three superficial sutures removed.

16th.—Two deep sutures at the upper part of the wound removed. Bowels still quiet. Fish for dinner.

19th.—The last suture removed. Ordered mutton chop and wine ʒvj.

20th.—Still doing well. Enema of warm water ordered, to relieve the bowels.

23rd.—Bowels freely opened, without pain. Wound closing rapidly. Powers good.

27th.—The ligatures have all come away. Wound closing rapidly.

October 10th.—The patient is up and about. Wound nearly healed.

November 5th.— Convalescent; to leave the hospital. Catamenia appeared before she left.

Case 7.—*Multilocular ovarian tumour; ovariotomy, and fatal result.*

(From notes by Mr. Puzey.)

Hannah D—, a married woman, æt. 24, was brought to Mr. Bryant by an old pupil, in August, 1863, with an ovarian dropsy of three years' standing. The tumour had been of slow growth in its early stage, but for some months its increase had been very rapid. In February, 1863, she was tapped for the first time, a second time in May, and again in August, about fifteen quarts of a light-coloured fluid being drawn off at each operation. For the last operation she was admitted into Guy's Hospital, under the care of Dr. Hicks. At this time a very careful vaginal examination was made, and although it was evident that some growth existed in the pelvis, there was nothing which positively forbade the idea of the operation of ovariotomy. At this time, however, the patient's friends refused their assent to such a step, and she accordingly left the hospital. In October she was readmitted, with her abdomen larger than ever; she was suffering also much pain, and was most anxious to have the tumour removed. A consultation was

then held by Drs. Oldham, Hicks, and Mr. Bryant, when it was decided to be but right to give the woman the chance, for it was certain that her life could last only a few months if palliative treatment were alone employed, and there were no very positive indications against the operation.

The patient was consequently moved into a private ward, and on October 8th the operation was performed, the woman being under the influence of chloroform; only a few lookers-on were admitted, together with the necessary assistants.

Mr. Bryant commenced by making an incision an inch below the umbilicus, and, having divided the peritoneum, an extensive layer of false membrane appeared, completely covering the cyst; it was very thin, like the pia mater membrane, and contained large vessels; it was readily torn through, and the cyst exposed. The tumour was then tapped, and steady traction applied to the cyst-wall, precautions being taken to follow up the escape of the tumour from the abdominal cavity by the hands of an assistant placed over the abdominal walls. The cyst was multilocular, and in some parts solid, being fixed to the pelvis by an enormous pedicle, the upper part of the uterus and the whole broad ligament being involved. The pedicle was tied by seven thick whip-cord ligatures, and the tumour excised. A second tumour was also found in the right broad ligament, firmly connected with the uterus, about the size of an orange; this, however, was left untouched. The wound was brought together by means of three deep and three superficial wire sutures, and the patient placed in bed. An opium suppository was then administered. The patient quickly rallied after the operation, but at 7 p.m. she complained of much pain and great thirst; and was troubled also with great flatulence. 10 p.m.—The patient was suddenly seized with faintness; hands and face became cold and pallid; pulse 120, feeble. There was no oozing, however, from the wound. Dr. Hicks saw her, and ordered a small dose of brandy to be given. 12 p.m.—The symptoms are much the same; there is now considerable jactitation of the limbs, and the patient complains of dimness of sight. The stomach rejects everything, even ice. From this

hour she rapidly sank, dying twenty-three hours after the operation.

After death the wound was opened, and about one pint of blood was found in the pelvis. The ligatures on the pedicle were quite firm, and it was probable that the hæmorrhage had therefore come from one of the vessels in the false membrane which covered the cyst. Evidence of acute peritonitis also existed. It was then seen that the tumour in the right broad ligament could not have been removed without the uterus.

Case 8.—*Multilocular ovarian tumour; ovariotomy; recovery.*

(Reported by Mr. Butcher.)

H. B—, æt. 34, was admitted into Guy's Hospital, on September 23rd, 1863, under the care of Dr. Oldham and Mr. Bryant, having been sent up from Dartford, in Kent, by Dr. Martin, her medical attendant.

She was a married woman, but she had not had any children, although she had been the subject of three miscarriages. Her general health had been tolerably good, but her aspect was not that of a healthy woman. The catamenia had been most irregular.

She had been the subject of ovarian disease for one year, having accidentally discovered about that time a swelling in her right side causing a good deal of pain. The tumour gradually grew, till in June last she measured twenty-nine inches round the abdomen; the cyst was also very tense. She was then tapped by Dr. Martin, who drew off six quarts of a dark-coloured and thick fluid. This, however, rapidly re-collected, and on her admission she was as large as ever.

A careful examination of the abdomen revealed a multilocular ovarian tumour, with apparently much solid matter. It was very tense, and the cause of much pain. A vaginal examination also proved that the uterus was quite free.

The advantages and risks of the operation of ovariotomy

having been laid before the patient, her assent was gained for its performance, and on October 8th, 1863, it was carried out. She was removed into a private room, and, as in Mr. Bryant's other cases, but few visitors were admitted, care being taken that all who were present were free from any morbific influence. Chloroform was given, and an incision, about six inches in length, made from the umbilicus downwards. On opening the abdomen some ascitic fluid escaped; the cyst was then tapped, and some few adhesions which existed in front were easily broken down; a second cyst also required to be opened, to lessen the tumour's size; with a good pair of claw-forceps the tumour was seized, and steady traction made upon it, when it readily escaped from the abdominal cavity, Dr. Hicks carefully following up the evulsion of the cyst with his hands placed over the abdomen. Some of the intestines, however, protruded, but they were at once returned.

The pedicle was a broad one, requiring three good whipcord ligatures to secure it, and when this was done, the tumour was excised. The edges of the wound were then brought together with wire sutures, the peritoneum being included, and the woman was placed in bed, ten grains of the compound soap pill being passed as a suppository.

The patient dozed comfortably after the operation, and at 6 p.m., four hours after, she was quite comfortable, and free from pain. At 10 p.m., she was still dozing. Abdomen flaccid; pulse 90.

9th.—Is as comfortable as possible. Abdomen flat and soft; free from all pain. Pulse 96; tongue natural; skin moist; expression cheerful. Has taken some arrowroot with appetite. Repeat the suppository.

10th.—Has had two hours' sleep; doing as well as possible; wound healthy.

11th.—Is most comfortable; nothing to note.

12th.—Several of the superficial sutures were removed, the wound having united. Towards evening a little flatulence appeared, which was relieved by a dose of bicarbonate of potash.

14th.—Going on most favorably. Ordered chicken for dinner, and wine ʒiv.

15th.—Has passed some flatus downwards with great relief.

16th.—Wound granulating rapidly; wine ʒvj.

19th.—Bowels freely opened naturally, and without pain; doing well.

21st.—All the deep sutures removed; wound perfectly united, except over pedicle.

November 3rd.—The wound is nearly well; the granulating stump of the pedicle alone remaining. The catamenia have appeared to-day without pain.

8th.—May be considered convalescent, although the pedicle has not quite healed over.

Case 9.—*Multilocular ovarian tumour; ovariotomy; recovery.*

(Reported by Mr. Butcher.)

Ann J—, a single woman, æt. 37, was sent to Mr. Bryant by Mr. Cockell, of Dalston, as a fit subject for ovariotomy. She was a native of Tewkesbury, in Gloucestershire, and a schoolmistress. She had always had good health, but had never been regular, and the catamenia had appeared but once since March.

She was admitted into Guy's Hospital on September 25th, 1863, under the care of Dr. Oldham and Mr. Bryant. One year previously she first observed her abdomen to be somewhat larger than natural, and this enlargement gradually increased; for the last three months the increase had been very rapid. When admitted her abdomen was tense, and distended by a tumour, which was evidently multilocular. The uterus was quite free. Her general health was good, although her powers were not strong. Tonics were given.

The subject of the removal of the tumour was then discussed, and its dangers explained to the patient, who, however, expressed a wish for its performance.

On October 16th the operation was therefore carried out. The patient was placed in a private room, and precautions

taken similar to those adopted in the former cases. The abdomen was opened by an incision six inches long, and a cyst tapped, some thick gelatinous fluid being drawn off. The abdominal opening was then increased about one inch, as the tumour did not readily escape from the abdomen, this small addition easily allowing the cyst to be drawn out. The tumour was well supported during its escape, and the wound closed by the hands of Dr. Hicks, the intestines being thus kept from view. The pedicle was narrow, and tolerably long. The clamp was therefore applied, and the tumour removed. The edges of the wound, with the peritoneum, were then brought together by wire sutures, deep and superficial, water dressing being applied. The patient was then placed in bed, and a suppository of the compound soap pill administered. Some slight vomiting followed the operation, but this soon ceased. 10 p.m.—Had slept one hour. Abdomen flaccid, although the patient felt a little flatus. Pulse 100. Skin and tongue moist. Urine to be drawn off at regular intervals.

17th, 4 a.m.—Has slept for nearly two hours, and awoke free from all pain, a fresh suppository having been given at two o'clock. 4 p.m.—Has slept again, and is still quite comfortable. Pulse 90. Good power. Suppository to be repeated.

18th.—Slept at intervals all night; is as comfortable as one could wish. The slough beyond the clamp excised. Beef tea ordered.

19th.—The clamp was removed this morning. Wound looking well. Countenance free from all anxiety. Wine ʒvj.

22nd.—The upper part of the wound has healed. Pedicle granulating.

26th.—Progressing most favorably. Chicken for dinner, and wine. Bowels rather uncomfortable. Enema of warm water given, with great relief.

29th.—Pedicle granulating rapidly.

November 5th.—Convalescent, wound having nearly closed

10th.—Cured.

Some months subsequently to her leaving the hospital this patient unfortunately died, the following note from Mr. Clarke indicating the cause—

47, High Street, Oxford;
January 18*th*, 1864.

Dear Sir,—You will be sorry to hear that Miss J—, your late patient at Guy's, died on the 10th instant, of pericarditis.

It came on very insidiously, being preceded by hectic symptoms and incontrollable but not excessive diarrhœa.

She had good nursing and attendance, and was not placed in circumstances likely to bring on such an attack. There were no particular abdominal symptoms beyond those incident to a relaxed condition of the bowels—I mean no great tenderness, undue distension, or anything of that kind. The wound healed absolutely, leaving a clear and clean cicatrix.

I am, dear Sir,
Yours truly,
Francis W. Clarke.

T. Bryant, Esq.

Case 10.—*Multilocular ovarian tumour; ovariotomy; recovery.*

(Reported by Mr. Long.)

Sarah C—, æt. 50, a married woman, but without children, was admitted into Guy's Hospital on November 25th, 1863, under the care of Dr. Oldham and Mr. Bryant. She was a resident of Cheshunt, and had been sent up to Mr. Bryant for operation by Mr. Stormont, under whose care she had been. She was a healthy looking woman, never having had any illness till eighteen months ago, when her present disease first appeared; it grew from her left side, and its increase was very gradual. In October last her size was so great as to require relief; she was consequently tapped, and sixteen quarts of fluid were drawn off; this, however, rapidly reformed, and she was tapped again on October 30th. When admitted, on November 25th, she was as large as ever; the abdomen was distended to its utmost, and she was in great pain. The tumour was evidently multilocular. A pelvic examination was made, and the uterus was found to be quite moveable.

The subject of ovariotomy was discussed, and the patient's consent readily secured. Some iron was given to her for some days before the operation.

On December 2nd, the patient having been moved into a private ward, the operation was performed, Drs. Oldham and Hicks kindly assisting.

A small incision into the abdomen was made, and the peritoneum opened, when a quantity of mucoid fluid escaped, analogous to that in an ovarian cyst. The presence of this fluid at first made Mr. Bryant and others believe that the cyst had been opened, but on examination it was evident that this was not the case, for the tumour was seen within the abdomen with an opening into it, which was freely discharging its mucoid contents into the peritoneal cavity; this opening had evidently been the result of the former tapping, the opening into the cyst never having healed. The tumour was then removed, the wound having been enlarged, and its pedicle secured by means of the clamp. The wound was closed with wire sutures, and an opium suppository administered. Some sleep followed the operation, and at 12 p.m. her pulse was 80. She was free from pain; abdomen flaccid; tongue moist.

December 3rd.—Has slept nearly the whole night. 6 a.m.—Pulse 84, and of good power; tongue and skin moist; abdomen flaccid; some arrowroot ordered. 9 p.m.—Still very comfortable; suppository to be repeated.

4th.—Nothing unfavorable to record.

5th.—Still going on well; repair progressing satisfactorily; pulse 80; beef tea and arrowroot taken freely.

7th.—Clamp removed, the slough having been previously excised; solid food taken, with wine ʒiv.

9th.—Sutures removed, the wound having united.

11th.—Bowels open for the first time since the operation, after an enema; has some slight cough.

13th.—Cough better; wound nearly well; takes food readily, with appetite.

17th.—Can sit up in bed without pain; feels quite well; wound has nearly closed.

23rd.—Wound healed completely.

25th.—Cured; left the hospital.

Remarks.

I have thus brought before your notice the particulars of the ten cases of ovariotomy which have passed under my care; and, as they show six recoveries and four deaths, I think the results may fairly be considered satisfactory. At the same time, however, I feel bound to add that, in three of the cases which proved fatal, the patients' general condition was such as forbad any great hope being entertained of a successful termination; nevertheless, as in the opinion of all consulted, the operation was considered to be justifiable, it was thought right to give the patients the benefit of the chance. Speaking now, however, after the event, I must admit that in each of these cases the probability of obtaining a good result was very slight, and, as a consequence, the operation was too hazardous, and that, in similar instances, I should now be disinclined to operate.

In this opinion I have reason to believe I am supported by my colleagues Dr. Oldham and Dr. Hicks, from both of whom, I take this opportunity of stating, I have received unlimited support, assistance, and encouragement, in the treatment of all the cases I have brought before you.

Case No. 4 was one in which both ovaries were found to be diseased, and were removed, and in which universal adhesions in connection with the cysts existed throughout.

In Case 5 the tumour was semi-solid in its consistence, and of the colloid nature, the patient's powers being much reduced; and in Case 7, although, in the abdominal and pelvic conditions, there were no positive signs which contra-indicated an operation, the general health of the patient was too much reduced to afford much hope of securing a successful issue.

It is true that the records of ovariotomy contain the particulars of many cases in which success has been secured against every probability and all antecedent experience; but such knowledge should not tempt the prudent practitioner

to be led away from the principles which influence him in the practice of general operative surgery, nor to incur extreme risks and hazardous enterprises with the slender hope that fortune may favour him. In the operation of ovariotomy—which is still in its infancy—we may be justified in incurring some apparent hazard, for experience has not yet taught us where probable safety begins and danger lies; but their general knowledge and tact will not fail to indicate to most surgeons the point at which the danger is too great, and the risk too uncertain, to justify the operation. The surgeon had better err on the side of extra caution than on that of danger, for, by so doing, I am convinced he will tend more to advance the interests of science as the operation we are now considering.

From the details of the cases which have been read it will have been readily gathered what are the chief points on which I have thought right to dwell, so far as they relate to the condition of the patient before the operation, to the operation itself, and to the after-treatment; but, in order to prevent mistake, I have thought it well to epitomise the whole, and explain briefly the principles on which I have hitherto acted.

And, firstly, as to the condition of the patient before the operation.

Condition of the patient.—In common with most surgeons, I have no faith in the assertion that has been seriously made, that the more the general health of the patient has been broken down by the disease the greater are the chances of a successful issue to the operation; but I quite agree with a recent author,[1] that the better the general health of the patient the greater is the probability of success.

Preliminary treatment.—I have failed to recognise any special points of practice in the preliminary treatment of a patient about to undergo this operation, and believe that the same principles which influence the surgeon in his preliminary treatment of a patient before *any* capital operation

[1] Spencer Wells, 'Med.-Chir. Trans.,' vol. xli, p. 52.

are equally applicable to cases of ovariotomy; but I may add that the administration of iron for some days before the operation is a practice which appears to me to be of considerable value, and a plan of treatment I have followed for some years.

The "warding" of the patient.—It will have been observed in all the cases related that the patient was placed in a private room with her own nurse, and was carefully guarded from the intrusion of every one who was not practically engaged in the treatment of her case; and during the operation only those spectators and assistants were admitted who were completely free from all recognised contagious influences.

It is to the careful observance of these rules that I, with some confidence, attribute the success of the practice above recorded, for I must add that in no other important respect has my operation differed from that of others.

Temperature of the room during the operation.—The temperature of the room during the operation has been about 65°, but at the same time its free ventilation was secured. A very high temperature, with closeness, has been carefully avoided.

The Operation itself.

Position of the patient.—I have generally preferred the half-sitting posture, believing it to be preferable to either the recumbent or the sitting. It is comfortable to the patient and convenient to the operator. It allows the tumour to fall forwards after the abdominal section has been made, and facilitates the escape of its fluid contents, at the same time materially assisting the surgeon in his endeavours to prevent the escape of the ovarian fluid into the peritoneal cavity, a point which has been regarded by some as very important; nevertheless some extra caution is demanded on the part of the assistant to prevent the too rapid escape of the tumour from the abdominal cavity.

Extent of incision.—It has been fairly decided, by the success which has attended the practice of different operators, that it is not of much importance whether the abdominal incision be a long or a short one. From Dr. Clay's success I would advocate the long incision, and from that of all other operators the short. My own practice has been hitherto influenced by such a conviction, for I have in all cases commenced the operation by making a short abdominal incision; but in certain examples, sooner than apply force in the removal of the tumour, I have increased the length of the wound upwards, regarding such an increase as unimportant in comparison with the evil effects of violence and dragging on the removal of the growth.

Examination of the abdomen for adhesions, &c.—When the incision has been made, and there is no evidence that adhesions exist between the cyst and the anterior abdominal walls, it appears to be an unnecessary practice, if not one of considerable danger, for the operator to introduce his hand into the abdominal cavity with the view of learning whether there exist any peritoneal adhesions. If adhesions do exist in front they must necessarily be broken down, but I believe it to be the best practice to separate all others as they manifest their presence during the removal of the tumour, and by following this practice it will be rarely necessary for the operator to introduce his hands into the abdominal cavity at all. When adhesions exist they can frequently be broken down by the finger of the operator, introduced at the wound's margin, for as the cyst empties, these adhesions are necessarily brought forward, and when they do *not* exist the peritoneum escapes even the touch of the hands of the operator. In complicated and exceptional examples of this operation, it is clear that this practice cannot be followed, but in the more ordinary and simple cases it is most applicable. Several of the examples above recorded prove the value of this advice, for in them the peritoneum was touched only by the knife and needle.

Treatment of the pedicle.—How to fix the pedicle with safety and ease, so as to prevent hæmorrhage and avoid undue

irritation and traction upon the pelvic viscera, is a problem which yet remains for surgeons to decide. The clamp and the ligature are at present indispensable for the carrying out of these purposes; but they are still imperfect, and it is hoped that other means may soon be found which will be free from the objections to the above, and yet possess their advantages. The practice which Dr. Tyler Smith has so boldly introduced, of tying the pedicle and of dropping it with its shortened ligature into the pelvis, is doubtless a step in the right direction; but such treatment has been hitherto applied only to the narrow pedicle, and the treatment of the broad yet remains untouched, although there is no reason why, in these cases, the same practice might not be carried out with an equally good result.

In the examples before us I applied the clamp or ligature according to circumstances. When the pedicle was long, and there was, therefore, no traction upon the uterus, I used the clamp, for its application is easy, and a more rapid convalescence appears to follow its use than that of the ligature. When the pedicle was short I employed the ligature, for it allows the pedicle to retract, and thus has a tendency to prevent that traction upon the parts which must be considered injurious. In other cases, in which the pedicle was very broad, the ligature was used.

Sponging out the pelvis.—The propriety or impropriety of sponging out the pelvis after the operation is a point in practice which experience has not yet definitely decided. Different operators have adopted either method, and apparently with equal success.

In the cases I have related, this practice was not followed, for in no instance was there any escape of blood of any importance into the peritoneal cavity, nor of any semi-solid ovarian matter, for, under these circumstances, the practice of sponging out the pelvis appears to be a sound one, but under any other it scarcely appears to be required. In a healthy patient, that is, in one who is likely to recover after such an operation as ovariotomy, the effusion of a little blood into the peritoneal cavity cannot be regarded in a

very serious light, nor can the escape of the limpid or mucoid contents of an ovarian cyst into the abdomen be looked upon with greater apprehension, for both fluids may and will, in all probability, be absorbed without difficulty; but the irritation of such a foreign body as a sponge upon exposed peritoneum and intestines must be looked upon as being more or less injurious, and, as a consequence, unless a strong necessity compels, the practice of sponging out the pelvis may be considered as being of a questionable nature.

We know from experience that blood may be extensively effused into a joint and no evil result follow, as it may into the cellular tissue of a part, and yet be absorbed; and obstetricians will readily recall cases in which blood has been effused into the peritoneal cavity without, of necessity, any serious result. We gather also, from the above cases, the fact that the contents of an ovarian cyst may escape into the peritoneum by rupture or by a tapping without any evil influence.

In the last case I have recorded, the cyst had evidently been discharging its mucoid contents into the peritoneal cavity for many weeks without the slightest bad effect.

Treatment of the wound.—In every case but one I have employed the silver sutures; but I have *not* done so from the belief that they are less irritating than the silk, for general experience in both has told me that such is not the fact, but because they allow a more accurate adaptation of the parts than do other kinds of suture.

I have also included the peritoneum in my sutures, with the abdominal muscles.

The after-treatment.—The after-treatment of all my cases has been very simple. In nearly all I administered a good opium suppository, as ten grains of the compound soap pill, directly after the operation, and when any pain appeared the suppository was repeated; but in other examples it was administered twice a day, or only at bedtime, according to circumstances. The beneficial effect of this practice in many of the cases was most marked, and in all it was good. It is by far the most effectual way of giving opium in these

ovarian operations, as it is in all others involving the intestines, pelvic viscera, or perinæum, and in my hands it has almost entirely taken the place of every other mode of administration. By such a practice we appear to secure all the good effects of the administration of an opiate, without its evil, and at the same time we acquire some additional advantages, for it certainly tends to neutralize the evil influence of chloroform sickness, it gives the stomach rest, and frequently sends the patient off at once into a quiet sleep, the value of which is indisputable.

In the majority of cases this opiate suppository was the only piece of special medical practice requisite, for, in all the above cases which have recovered, convalescence went on from the beginning, and no bad symptoms made their appearance.

The patient's room was kept cool and airy, as in any other case of operation; for the first two or three days beef tea and arrowroot formed the chief diet, but after that fish, meat, and wine, were carefully administered; indeed, the same principles of action were adopted in these cases as have been proved of value in other operations in general surgery; the main object being to keep up the powers of the patient, so as to enable nature to complete the cure.

Mr. Spencer Wells said that the proposition with which the author commenced his very valuable paper—to the effect that ovariotomy could be performed in large hospitals with as good results as in the small institutions which more closely resembled private houses—was refuted by the details of his own cases. In every one of these ten cases the patients had been placed in a separate room; a special nurse had been provided for them; there was no carrying to and from the operating room, nor indiscriminate admission of visitors and students; but all those precautions had been taken which placed the women nearly in the same circumstances as if they had been in a small hospital or a private house. Ovariotomy had been almost uniformly fatal in the large hospitals until it had been shown, by the results of his (Mr. Wells') own cases, and those obtained by others in small institutions or in private practice, that success could only be obtained by that repose, isolation, careful nursing, and those sanitary con-

ditions which had not been obtained in the large hospitals. Nobody ever had asserted that the operation could not succeed in large hospitals; but he did claim some credit for himself and for others who had shown why ovariotomy succeeded so much better in small than in large hospitals, because he felt sure that the generous rivalry which had sprung up would not only lead to the general adoption in large hospitals of those precautions which protected patients about to undergo ovariotomy from injurious influences, but that the same precautions would be taken before all other serious operations, and would remove many preventable causes of mortality. No one would seriously maintain that, if all the patients who had undergone amputation in Guy's Hospital had been as well cared for as the ten women upon whom Mr. Bryant had performed ovariotomy, the mortality would have been nearly as large as he himself had shown it to be in the valuable reports which he had brought before the Medical and Chirurgical Society. He (Mr. Wells) felt assured that, sooner or later, the lessons which had been taught by the ovariotomists would lead to the general adoption in the large hospitals of such precautions as would greatly diminish the mortality after lithotomy, amputations, herniotomy, and all other important operations. Mr. Bryant's cases also resembled those of the surgeons of small hospitals, in the fact that he was the only operator. Did any one believe that if the ten cases had been divided among five of the surgeons of Guy's, as ten amputations or ten lithotomy cases would have been, the result would have been as good? Ovariotomy was an operation which, above all others, demanded an experienced operator. Mr. Bryant's later cases were more successful than his earlier cases, and he had also learned by experience when to operate and when to reject cases as unfit for operation. If large hospitals wished to have as good results as small ones, they must also adopt a system which secures a large experience to one operator. Mr. Bryant's remarks upon the rejection of all unfavorable cases must be received with some limitation. Every surgeon would be anxious, for the sake of surgery in general, for the credit of a particular operation, and for his own reputation, only to operate in favorable cases; but common humanity often obliged him to make the attempt to save life, when a patient must soon die if left alone, even although the prospect of success was very small. When a poor woman whose best prospect is a few weeks or months of a life of hopeless suffering calls upon a surgeon for aid, it might be his duty, in a case not absolutely desperate, even although her prospect of recovery was but as one in ten, to risk his reputation in the hope of saving her life. Many matters of detail, suggested by the author's cases, called for remark; but he (Mr. Wells) would only allude to one, namely, the practice of sponging blood or ovarian fluid fron the peritoneal cavity. In

many cases no sponging was necessary, because a cyst was removed without any of its contents, or any blood, getting into the abdomen or pelvis. But when there was either blood or fluid in the cavity—and especially when the curious products resulting from a mixture of blood with serum or mucoid fluid were present—his experience had taught him that they should be carefully removed at the operation, or afterwards if there was good reason to believe that they were doing harm. He had done this with excellent results in three cases, making a puncture by the vagina. Dr. Peaslee had even gone so far as to practise daily washing out of the peritoneum. He (Mr. Wells) would not express any opinion as to this extreme measure; but he thought the comparison of the author between these cases and those in which blood was effused into an unopened joint, or into any closed serous sac, was not a fair one; inasmuch as the opening of the cavity, the admission of air, and the mixture of ovarian or ascitic fluid with blood, almost destroyed all analogy between cases so essentially different. The rule should be so to operate as to keep the peritoneal cavity, if possible, free from any blood or fluid whatever; but, when this could not be effected, any extraneous fluid should be removed with scrupulous care.

Mr. Baker Brown agreed with the last speaker that the arrangements had been precisely the same as those practised in a small special hospital, but he would strongly urge Mr. Bryant not to exclude the pupils. In the London Surgical Home, visitors, sometimes to the number of fifty or sixty, witnessed his operations, and he had seen no ill effect follow, his statistics of ovariotomy in that institution being thirty-six operations and thirteen deaths. But after the operation the patient must be separated from the others to give her a fair chance of recovery. With reference to sponging out the peritoneum, Mr. Brown laid down this rule—if there were blood or fluid of a colloid nature in the cavity, it must be removed either by sponges or flannels, or sometimes by placing the patients on one side; if, however, the fluid was ascitic or simple mucoid fluid, as often found in ovarian cysts, and not in large quantities, he left it alone. Of course, one would not interfere with the peritoneum if there were no occasion.

Mr. Bryant, in his reply, thanked the Society for the way in which they had received his communication. He was quite ready to give all credit to the surgeons of the smaller hospitals for having, by their energy and success in ovariotomy, stimulated others to practise the operation. He was ready to admit that great precautions were needed in the larger institutions to isolate the patients, and thus rescue them from all risks of contagious influences. The success which his cases had demonstrated was undoubtedly to be attributed to this caution; but it also proved

that such was to be obtained in a large hospital by attention to these points. He acknowledged that a surgeon was placed in a difficult position when asked to operate in a case in which the prospect of success was very small, but he believed that almost desperate cases should be avoided. He would advise the sponging out of the pelvis when much blood or colloid fluid had escaped into it; in other cases it was not required. He agreed with Mr. Brown that it was a desirable thing that the pupils should witness the operation; but as this advantage was only to be obtained by incurring some unnecessary risk to the patient, he had thought it better that, to a certain extent, they should be excluded. The few who had been admitted were senior men, who had been placed under a kind of quarantine for some days previously.

March 2nd, 1864.

Dr. Oldham, President, in the Chair.

Present—35 Fellows and 10 visitors.

The following gentlemen were elected Fellows of the Society:—F. J. Butler, M.D., Winchester; Thos. Chambers, L.R.C.P., London; Ed. Fussell, M.B., Brighton; Samuel N. Harrison, Patrington, Hull; Ed. Jackson, M.B., Sheffield; W. N. Price, Esq., Leeds; A. G. P. Wilks, M.D. Cantab., Guy's Hospital.

Dr. Hicks read a report on two cases of monstrosity exhibited by himself and Dr. Gervis at a former meeting of the Society. [This report has been already published. See 'Transactions,' Vol. V. p. 290.]

CASE OF FATAL UMBILICAL HÆMORRHAGE IN AN INFANT.

Dr. Grailly Hewitt related the particulars of a case of hæmorrhage from the umbilicus. The mother of the patient, a weak, ill-nourished individual, was delivered of a female child at about the eighth month, in the British Lying-in Hospital. She had previously lost a child, a few days old, from bleeding at the mouth, ears, and rectum. At birth the infant was weakly and the circulation languid; moreover, in

the course of a few hours the child became jaundiced. The second day after birth a very slight appearance of blood was noticed at the insertion of the cord. On the third day hæmorrhage set in, and when seen by Dr. Graily Hewitt had lasted for upwards of an hour. The child was then excessively pale, and moribund. Further loss of blood was prevented by application of a ligature *en masse*, but the infant died about an hour afterwards. The blood exuded as from a sponge, at the junction between the cord and the abdominal wall. Post-mortem examination showed great congestion of the liver, and slight hæmorrhagic effusion into the peritoneal cavity. There was no ulceration of the stump of the cord inwards through the abdominal wall.

Dr. Graily Hewitt alluded to a series of cases of this affection published by Grandidier. In a large proportion of them jaundice was observed, as in the above case; and in a few the existence of a hæmorrhagic diathesis was well marked. The treatment carried out in the above case had been found most successful in the hands of others—namely, the use of the ligature *en masse*. The mortality from this affection had been found to be very high—namely, 83½ per cent.

EIGHT ADDITIONAL CASES OF OVARIOTOMY.

By W. Tyler Smith, M.D.,

PHYSICIAN-ACCOUCHEUR TO ST. MARY'S HOSPITAL; EXAMINER IN MIDWIFERY IN THE UNIVERSITY OF LONDON, ETC.

The notes of twelve cases have already been presented to the Society, and published in the 'Obstetrical Transactions.'

Case 13.—*Multilocular tumour of the right ovary; operation; recovery.*—Emma H—, æt. 33, unmarried. The patient measured forty-two inches. The tumour had been of rapid growth. Ovariotomy was performed on the 16th of June,

1862, in the presence of Mr. Edwards, of Edinburgh, and with the assistance of Dr. Murray, Mr. T. E. Edwards, and Mr. Staples. The abdominal incision was about four inches in length. The bulk of the tumour was made up of two principal cysts full of purulent matter, nearly of the consistence of cream; there were no adhesions of importance. The cysts were tapped in succession, the pedicle was transfixed by a double silk ligature and tied on each side. The pedicle was then divided and trimmed closer to the ligatures, the ends of the latter were then cut off, and the whole allowed to drop into the pelvis. The abdominal wound was closed by silver sutures, cotton wool was laid over the surface, and a flannel bandage applied. Three days after the operation this patient suffered most distressingly from tympanitis, sickness, and abdominal pain. These symptoms were relieved by one or two doses of calomel, turpentine stupes, and assafœtida injections; she took by the mouth ice water and milk; she gradually recovered, and returned into the country a month after the operation. In October she presented herself for examination, quite well.

Case 14.—*Multilocular tumour of the right ovary; ovariotomy; recovery.*—Mrs. B—, æt. 54, was recommended to me by Dr. Hayman, of Eastbourne. This patient was very weak and emaciated at the time of the operation. She was of very large size, and had suffered from disorder of the liver from residence in the West Indies. The operation was performed October 13th, 1862, under chloroform, in the presence of Dr. Hayman, of Eastbourne, Mr. Mathewson, of Belvidere, Kent, assisted by Dr. Murray and Mr. T. E. Edwards. There were extensive adhesions to the abdominal wall on the right side. The tumour consisted of numerous cysts full of thick gelatinous matter. Large incisions had to be made with the knife to empty the cysts of their contents. The pedicle, which was small, was transfixed, ligatured, divided, and allowed to drop into the pelvis. Dr. Hayman remained the night with her, and large doses of morphia, to which she had been accustomed, were required to allay abdominal pain.

It was necessary very largely to resort to meat diet, quinine, and wine. Her convalescence was somewhat protracted, though the wound healed by the first intention; the hepatic symptoms were troublesome. At the present time she is in better health than she has been for years.

Case 15.—*Multilocular tumour of the left ovary; ovariotomy; recovery.*—Eliza B—, æt. 32. In a great state of emaciation; she measured forty-two inches. The tumour had been growing for about ten years. Ovariotomy was performed in the presence of Dr. Watson, the President of the Royal College of Physicians, and with the assistance of Dr. Murray, Mr. T. E. Edwards, and Mr. Staples. The operation was performed in the usual way under chloroform, and a multilocular tumour removed from the left ovary. The pedicle was transfixed, tied with a silk ligature, cut close off, and returned into the pelvis. The wound was closed by deep and superficial sutures. She had at night an enema, with thirty drops of laudanum, which was the only medicine administered; she took stimulants early, made an excellent recovery, and returned to the hospital from a lodging which had been provided for her in less than a month from the time of the operation.

Case of ascites with malignant tumour supposed to be ovarian; operation; death.—This case was sent to me as an ovarian tumour by Mr. Sanger, of Alfriston, Sussex, and I do not believe it would be possible to have made a correct diagnosis of the case. She was forty-three years of age, had had thirteen children, the youngest fifteen months old; since her confinement she had gradually increased in size, and measured forty-eight inches. She had not suffered any unusual pain, the pulse was good, not more emaciated than is frequently seen, and her complexion not at all like that seen in malignant disease; there was very considerable œdema of the lower extremities and of the abdominal walls. Through the ascitic fluid a tumour, believed to be ovarian, could be felt somewhat on the left side. On making an incision through

the deep infiltrated tissues it was found that a tumour was firmly and extensively adherent to the abdominal wall. This tumour was dissected out and removed, and the ascitic fluid evacuated. It was then found that numerous other tumours existed of a malignant character, too intimately connected with the intestines and other structures to admit of removal; the wound was therefore closed. She never rallied, and died about four hours after the attempted operation. A post-mortem showed the existence of numerous cancerous tumours of the omentum, mesentery, and intestines. Both ovaries were diseased, though of small size.

Case 16.—*Multilocular tumour of the left ovary; operation; recovery from ovariotomy; death from bronchitis three weeks after the operation.*—Mrs. H— had been formerly a patient at the Samaritan Hospital for a large compound tumour of the left ovary. Her general health was very bad, and she had been accustomed to frequent attacks of bronchitis. She was kept in St. Mary's Hospital some time, and her health improved so much as to appear to warrant the operation. It was performed, April 15th, 1863, in the presence of Dr. Routh, assisted by Dr. Murray, Mr. T. E. Edwards, and Mr. Staples. Great difficulty was experienced in bringing her under the influence of chloroform. The operation was performed in the usual manner. Strong and firm adhesions were met with on the left side. The pedicle was ligatured, divided, and returned into the pelvis, and the external wound closed with sutures. She made a good recovery as regards the operation; there was no tympanitis or abdominal tenderness, and the wound healed by the first intention. An attack of bronchitis came on a few days after the operation, but at the end of a fortnight she became better and sat up daily. On May the 5th she was removed from the lodging at her express wish into St. Mary's Hospital. On the 6th she ate a good breakfast, but later in the day she complained of faintness and died almost suddenly. A post-mortem showed extensive emphysema of both lungs, and the bronchial tubes were much thickened. On examining the abdo-

men everything relating to the operation was perfectly healed. The pedicle and ligature were enclosed in a sac formed by coagulable lymph. The sac contained a portion of caseous matter about the size of a marble.

Case 17.—*Multilocular cyst of the left ovary; operation; recovery.*—Mrs. B—, æt. 43, of East Burgholt. Has had eleven children, the last three years ago. She first noticed herself getting larger about six years since. The operation was performed on the 26th of June, in the presence of M. Courty, of Montpelier. The tumour was principally made up of a large cyst filled with gelatinous fluid, and there were extensive adhesions on the left side. The pedicle was ligatured, divided, and dropped into the pelvis. She took no medicine besides a few doses of opium. Her recovery went on without a single bad symptom, except slight suppuration of the lower part of the external wound. She left for the country quite well on July 30th.

Case 18.—*Multilocular cyst of the left ovary; operation; recovery.*—The tumour had been growing for eighteen months. She measured forty-six inches. Her legs were enormously œdematous, and the abdominal wall considerably so. The operation was performed in the usual manner; the tumour was found to be firmly adherent to the abdominal wall, the omentum, and intestine. In separating the intestinal adhesion the muscular coat of the bowel was exposed, and a small vessel in it wounded. This bled very freely, and I put a metallic ligature on the bleeding vessel. The pedicle was returned into the pelvis. She recovered without a single bad symptom.

Case 19.—*Multilocular colloid tumour of the left ovary; operation; death on the sixth day.*—Miss S—, æt. 58. I was called to this patient by Dr. Hayman, of Eastbourne. The tumour had been growing about a year. She had been tapped by Mr. Paget a month previously, but she had filled again to such an extent as to require immediate relief, and I therefore

tapped her. A fortnight after, she had again filled, and the operation was decided on. This was performed in the presence of Dr. Hayman and Mr. Colegate, of Eastbourne, Mr. Tuck, of Seaford, Dr. Murray, and Mr. T. E. Edwards. The lower extremities were enormously distended by œdema, and as hard as brawn. On making an incision from the umbilicus to near the pelvis considerable embarrassment was met with, from the tumour being adherent to the peritoneum in the whole line of incision. When this had been separated numerous other adhesions, particularly on the left side, were met with. The bulk of the tumour was made up of large masses of colloid. On getting the tumour out of the abdomen the pedicle was found to be so small that it was found impossible to avoid tearing it. In this way, and from the separation of the adhesions and diminution of the tumour, much hæmorrhage occurred. Considerable difficulty was found in securing the pedicle. It was afterwards dropped into the pelvis. She was very faint and exhausted when returned to bed. She however, rallied, took stimulants and food, and went on well until the fifth day, when sinking, with distressing tympanitis, came on, and she died on the sixth day. No post-mortem was allowed.

Case 20.—*Multilocular tumour of the left ovary; operation; recovery.*—Miss M—, æt. 39. The tumour had been growing about two years. She was extremely emaciated and suffered from repeated attacks of bronchitis. One eminent auscultator thought there were tubercular deposits in the lungs, but as I had seen this before imitated by pressure I determined on the operation. It was performed on the 9th of December, with the assistance of Mr. Foulds, of Chesterfield, Dr. Murray, Mr. T. E. Edwards, and Mr. Staples. There were no adhesions of consequence; the pedicle was secured and returned into the pelvis; the external wound healed by the first intention. After the operation she had a severe attack of bronchitis, and was for some time in considerable danger; she, however, rallied, and is now in excellent health.

Remarks.

Of the twenty cases of ovariotomy now and formerly related to the Society, sixteen have recovered, or 80 per cent. If any one should consider that Case 16, in which the patient died of bronchitis three weeks after the operation, ought to be omitted from the list of recoveries, the cures would still amount to 75 per cent. I have now returned the pedicle into the pelvis in ten cases, and I see no reason to discontinue the practice, but am strongly disposed to recommend it to others. As regards the state of the patients at the time of the operation, I would observe that in all the poor women the disease was so far advanced as to disable them from the performance of their ordinary duties, while in those of better circumstances the condition was such that the operation could not have been delayed longer without risk to life. All the poor patients were operated on in private lodgings.

The PRESIDENT considered that in cases of doubtful diagnosis the operation of tapping was advisable, as preliminary to the other operation.

Dr. TYLER SMITH thought that in the case alluded to by the President no positive information would have been obtained by tapping. The diagnosis was extremely difficult in some cases. In the particular instance in question there was extreme œdema of the abdominal walls, and he thought it probable that such œdema might be found in other cases to be associated, as it was in this case, with malignant disease. In answer to a question from Mr. Cumberbatch, Dr. Tyler Smith stated that he preferred non-metallic ligatures for securing the pedicle.

Mr. SPENCER WELLS said that the question raised by Dr. Tyler Smith as to the mode of securing the pedicle was one of the most important which could be considered by the Society. He had followed Dr. Tyler Smith's practice in five cases. From the first no conclusion could be drawn, as the patient would probably have died had the pedicle been secured in any other manner. Two of the other four had recovered more quickly than they probably could have done under any other proceeding, although in both there was more evidence of sthenic peritonitis than was often seen where the clamp was used. In two other

cases the patients died of diffuse peritonitis, and he (Mr. Wells) thought they might have done better if the clamp had been used. In one no post-mortem could be made. In the other the ligature and the tissue it enclosed were surrounded by a sort of capsule formed by two coils of small intestine, adhering together and to the pedicle by recent lymph. It was a matter of some doubt whether such a condition might lead eventually to intestinal obstruction, and be more objectionable than the adhesion to the abdominal wall which followed the clamp. His (Mr. Wells') own impression of the three modes of dealing with the pedicle was, that when the pedicle was long the clamp was the safest and best mode; but that when the pedicle was short, it was better to cut off the ligatures short, and return the tied pedicle, than to leave the ends of the ligature hanging out through the abdominal wall. In reference to the question of the diagnosis of cancer, he had never met with a case of cancer in the abdomen which had not been diagnosed without operation. The diagnosis of cancer of the peritoneum was not difficult. In one case cancer of the right kidney was easily recognised, and was found after death to weigh seventeen pounds. In two other cases of cancer of the ovary—one of the left ovary and one of both ovaries, with a large quantity of ascitic fluid—the diagnosis was easily made out after the preliminary tapping suggested by the President, and was proved to be correct after the death of the patient. In neither of these cases was there much œdema of the abdominal wall, and he (Mr. Wells) differed completely from Dr. Tyler Smith in his opinion that this œdema could assist us in making out whether an abdominal tumour was innocent or malignant.

Dr. Grailly Hewitt mentioned a case in which he had observed very extensive œdema of the abdominal parietes, together with great œdema of the lower extremities, and in which the abdominal tumour present, and which reached above the umbilicus, was constituted by the ordinary bladder enormously distended with urine. It was evident, therefore, that œdema of the abdominal walls could not be depended on as a sign of malignant disease.

Dr. J. Braxton Hicks wished to ask Dr. Tyler Smith whether he had found any subsequent untoward result from the dropping in of the ligature. Although this practice had been shown by the results to be apparently unattended with danger, and possessed many advantages, still the ligature had possibly to be accounted for at some future day. He considered the perfection of ovariotomy would be nearly gained by doing without any ligature at all. He believed it would be possible, by firmly compressing the pedicle for an inch or so by a serrated clamp or some such apparatus, to condense the tissues so firmly as to completely prevent bleeding. The pedicle could then be dropped into the pelvis. He threw out this suggestion because he had found, in examining tissues after

the use of the écraseur, that it was nearly impossible to unravel them; and he thought if the width of the compressor were increased no bleeding would result.

In reply, Dr. Tyler Smith stated that he had every reason to be satisfied with the results of the plan of dropping the pedicle into the pelvis after securing it by a ligature, and he could with confidence recommend it as being probably safer and certainly more convenient than the other plan. He should be very glad to have an instrument such as that suggested by Dr. Hicks for dividing the pedicle if it could be relied on for preventing hæmorrhage.

April 6th, 1864.

Dr. Oldham, President, in the Chair.

Present—Fellows 49, visitors 15.

The following gentlemen were elected Fellows:—J. M. Granville, Esq., Dr. J. F. Leeson, Dr. H. C. Phillips, and Dr. A. Wynn Williams.

Dr. Oldham exhibited an Ovarian Tumour removed from a lady under his care by Mr. Spencer Wells.

Dr. Greenhalgh exhibited a specimen of simple Hypertrophy of the Cervix Uteri, removed by the wire-rope écraseur.

Dr. Braxton Hicks said he had used the wire rope écraseur many times for the removal of the cervix; and in another case the scissors, after the plan of Dr. Marion Sims. In none of the cases had there been any untoward result.

Mr. Baker Brown said that he approved of the operation for removing one or both lips of the os uteri, either by écraseur or knife or scissors. Mr. Baker always used the knife or scissors. He had never seen any danger arise from the operation in very many cases in which he had operated. He therefore considered it a perfectly justifiable proceeding.

ON THE OPERATION OF CEPHALOTRIPSY AS PERFORMED AT VIENNA BY PROFESSOR BRAUN.

By C. G. Ritchie, M.D.

The accompanying engraving represents the instruments used by the Viennese school in performing the operation of

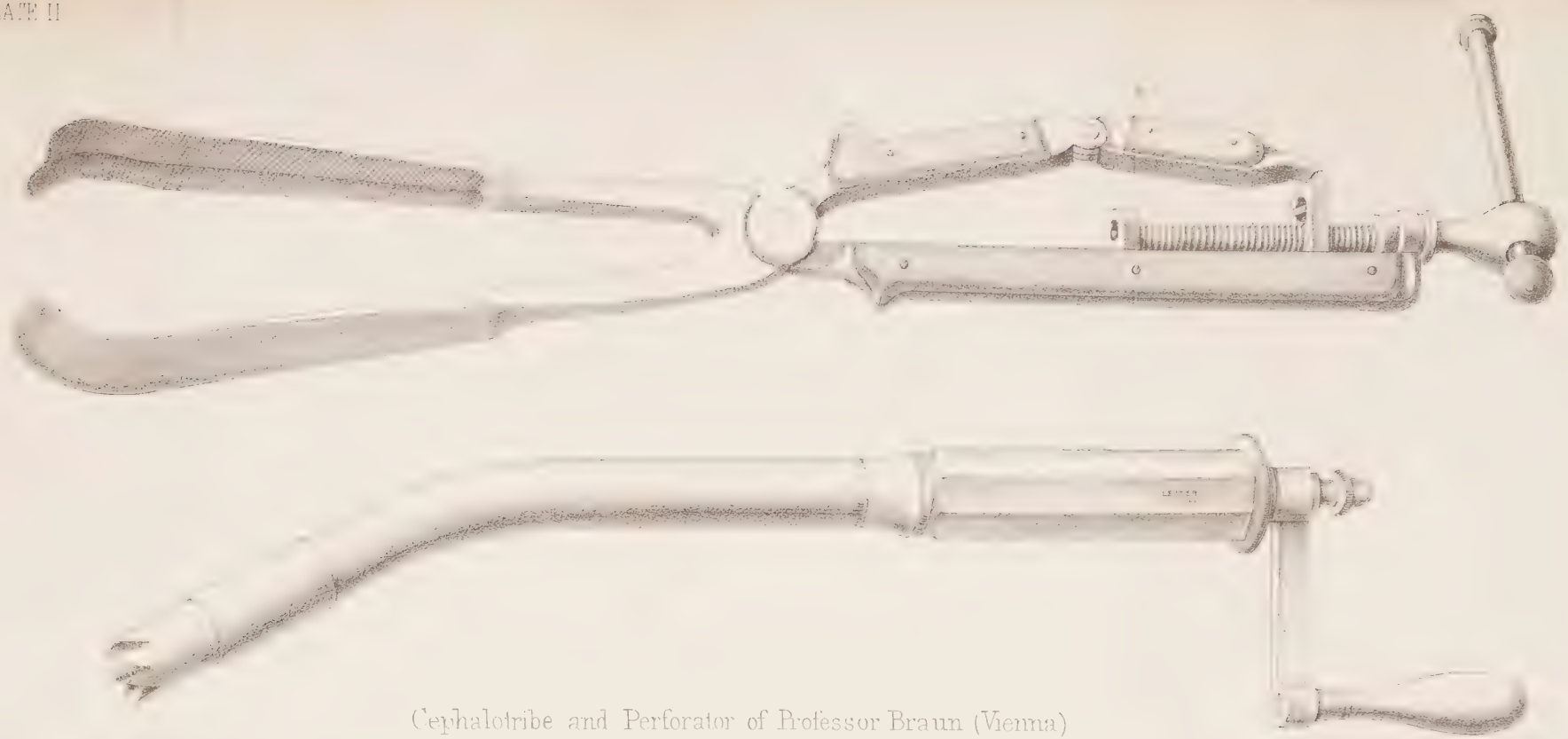
cephalotripsy, an operation which in that school is almost invariably substituted for the use of the crotchet.

The instruments are two in number—the perforator and the cephalotribe.

The perforator is a long, curved trephine; it consists of a metal cylinder eleven inches long, three-quarters of an inch in diameter, and curved to suit the pelvis. This cylinder is traversed by a rod of flexible metal thirteen inches in length, to one end of which is fitted a trephine-head provided with a central screw, while to the other is adapted a crank handle. The rod and cylinder are screwed together in such a way that, when the handle is turned, the trephine-head may either be withdrawn altogether within its investing tube, or protruded from it as far as one inch and a quarter.

This instrument is intended to replace Smellie's scissors. The trephine having been drawn back into its sheath, the end of the tube is introduced into the vagina, under the guidance of two fingers of the left hand. These fingers keep the end of the cylinder firmly pressed against the parietal protuberance, or any other part of the fœtal skull which is attainable, while the right hand grasps that portion of the tube which is extra-vaginal. An assistant now turns the crank handle from left to right, and continues to do so until, from sudden cessation of resistance, he is aware that he has entered the cranial cavity. The handle is then turned in the opposite direction; the trephine-head once more conceals itself, but it does so carrying with it a little circle of bone, and leaving in the cranium a clean-edged foramen three-quarter inch in diameter.

The cephalotribe differs from the French instruments in being smaller and less cumbersome; its compressing apparatus is also peculiar. The instrument is sixteen inches long, six and a half inches being taken up by the handle, one and a half by the lock, which is the ordinary Brunninghausen lock, and the remaining eight by the blades. The blades are strong and non-fenestrated; when closed, they meet at the points, and nowhere does the distance between them, including their thickness, exceed two inches two lines; each blade is



Cephalotribe and Perforator of Professor Braun (Vienna)

Cephalotribe of M. Pajot (Paris).

eleven lines broad and two lines thick, but it is further strengthened by three ridges which project from its inner surface, and are intended to increase the tenacity with which the head is grasped. The handles are inlaid with bone, and provided with slightly projecting knees. The right handle is bisected by a hinge-joint opening inwards, and terminates in a strong hook. To the inside of the left handle is attached a long brass screw, capable of being rotated by a powerful lever handle, and upon this screw plays a nut provided with a round aperture, meant to receive the hook which terminates the handle of the opposite side.

The different blades of the instrument are introduced just as in a case of long forceps; they are locked, and everything is thus prepared for the forcible compression. The process is self-evident. The nut is raised to the top of the screw, the right handle is bent until its hook catches in the eye of the nut; then the lever is turned, and, as the right handle is pulled straight, of course the blades approximate and crush the head which lies between them. The instruments are the invention of Dr. Braun, of Vienna, but he lays no claim to great originality.

Kiwisch and many others were in the habit of using trepanartige perforatoria. Braun only gave the instrument a pelvic curve. The cephalotribe is, without doubt, the lightest, neatest, and most practicable instrument of the kind which has yet been made public, and the compressing apparatus is, perhaps, the best which has yet been devised.

[The instruments here described are depicted in Plate II.]

Dr. Barnes observed that all engaged in practical midwifery would say that an instrument that required two persons to work it was objectionable, nor could he approve of Professor Braun's perforator on other grounds. It was unnecessarily complicated, and the use of it would require needless waste of time. He (Dr. Barnes) had employed for some years past a perforator which had been recommended to him by the President. Its action was perfectly satisfactory,—that is, as satisfactory as anything connected with so revolting an operation could be. It would make an opening larger, and affording even a freer escape for the contents

of the skull, than Braun's perforator. The cephalotribe seemed to him to be a vast improvement upon the French form. This instrument had been, perhaps, too much neglected in this country.

Dr. Graily Hewitt exhibited to the Society a cephalotribe which he had some time ago procured from Paris. It was the instrument there used by Pajot, and for simplicity and efficiency it was, he believed, equal, if not superior, to any other cephalotribe. The crushing force which could be applied, and by means more simple than in the cephalotribe of Professor Braun, was something extraordinary. Cases were rare in which the instrument was required, but in certain instances of very narrow pelvis the delivery could be effected more safely and easily with the aid of the cephalotribe than in the ordinary method.

[Pajot's cephalotribe will be found depicted in Plate II.]

ON SPONDYLOLISTHESIS, WITH AN ACCOUNT OF A CASE OF PELVIC CONTRACTION, FROM THIS AFFECTION, IN WHICH PREMATURE LABOUR WAS INDUCED BY THE AUTHOR'S METHOD.

By Robert Barnes, M.D. Lond., F.R.C.P.,

OBSTETRIC PHYSICIAN TO, AND LECTURER ON MIDWIFERY AT, ST. THOMAS'S HOSPITAL; EXAMINER IN MIDWIFERY TO THE ROYAL COLLEGE OF PHYSICIANS.

Under the name Spondylolisthesis Kilian described an affection of the spine, the most interesting character of which is the sliding downward of the fourth or fifth lumbar vertebra into the true pelvis, so as to contract the space at the brim and in the cavity. Kilian based his description[1] upon three pelves. One of these had arrested his

[1] 'De Spondylolisthesi gravissimæ pelvangustiæ, causa nuper detecta. Commentatio anatomico-obstetricia,' Bonnæ, 1853; and 'Schilderungen neuer Beckenformen.' Mannheim, 1854.

attention in the Maternité at Brussels, in 1836; the second pelvis is preserved at Prague; the third is known as the Paderborn pelvis. In all these cases the Cæsarean section had been performed. This circumstance will suffice to prove the gravity of this deformity; and as the affection has not, to my knowledge, been hitherto recognised in this country, or described in English literature, I have thought it might be an acceptable service to lay a compendious history of it before the Obstetrical Society.[1]

Since the admirable accounts given by Kilian in 1853 and 1854, several German obstetric practitioners have contributed valuable observations and criticisms upon the subject. I will first briefly refer to the cases originally described by Kilian, who detected their true import, and distinguished them from cases of distortion from rickets, or osteomalacia, affecting the pelvic bones.

In the Brussels case (Case 1) the pelvis was quite normal, but the conjugate diameter was contracted in the highest degree by the sinking down of the lumbar vertebræ in front of the sacrum.[2]

Case 2.—In the Prague case the patient died of hæmorrhage, after the Cæsarean section, in 1849. The fourth and fifth lumbar vertebræ had sunk so low in the cavity of the pelvis that the promontory forming the posterior boundary of the conjugate diameter was formed, not by the junction of

[1] The only English references to the subject that I am acquainted with are in my reports in the 'British and Foreign Medico-Chirurgical Review,' and a summary of Breslau's second case, in the New Sydenham Society's 'Year-Book', for 1863, by Dr. Graily Hewitt.

[2] The obstetric history of the Brussels case was supplied to Dr. Lambl by Professor Glüge. A rachitic woman, æt. 42, was admitted, in 1838, in labour at the end of her third pregnancy. She had been delivered of her second child by forceps. In her third labour the uterus lay like a sack across the pubes. She died of exhaustion, undelivered, the Cæsarean section being performed immediately after death. The two lower lumbar vertebræ projected forwards and downwards, so that the promontory was formed by the fourth lumbar. The conjugate diameter was 3″·3.

the fifth lumbar vertebra with the sacrum, but by the upper edge of the fourth lumbar vertebra.

Case 3.—In the Paderborn case the first pregnancy terminated in premature labour, the second by the Cæsarean section, the third in premature labour, and the fourth in death forty-eight hours after the Cæsarean section. The gait of this last patient was so peculiar that she resembled a quadruped, her body was so bent forwards.

Representations of the Prague and Paderborn pelves are appended, copied from Kilian. (See Pl. III, figs. 1, 2.) In the Paderborn case (fig. 2), it will be seen, the actual promontory was formed by the lower part of the second lumbar vertebra, the whole of the third, fourth, and fifth vertebræ having fallen into the pelvic cavity.

I postpone reference to Kilian's views as to the origin and pathology of this deformity until I shall have passed in review some other cases recorded by different authors

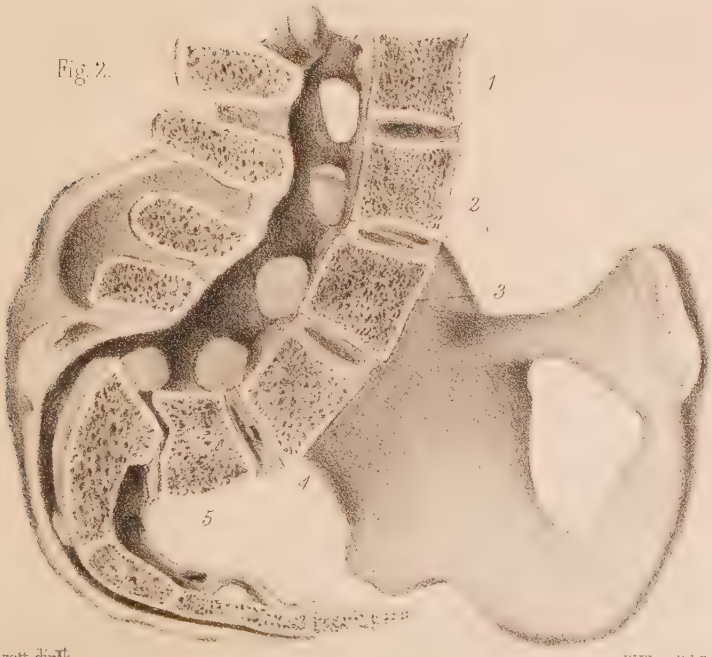
Case 4.—In 1854 Joseph Spaeth[1] described the following case:—A woman, æt. 29, was admitted into the Vienna Lying-in Hospital in 1836. "The last lumbar vertebra was felt projecting considerably inwards;" the head was very difficult to feel. The patient was delivered by excerebration of the fœtus. She died on the sixth day, of metrophlebitis. In this case the neck, chest, and limbs were proportionately developed; the upper part of the body was strongly bent backwards when walking; the lumbar vertebræ formed a remarkable concavity, the belly much overhanging. The conjugate diameter was reduced to 3″ 1‴. The promontory was formed by the middle of the fourth lumbar vertebra.

Case 5.—In 1855 Dr. Robert,[2] of Coblentz, described a peculiar case of congenital lordosis apparently caused by the

[1] 'Zeitschrift der Gesellschaft der Aerzte zu Wien,' 1854.
[2] 'Monatsschrift für Geburtskunde,' 1855.

Fig. 1.

Fig. 2.



Dr. Westmacott. dirxt.

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W. West lith.

slipping down of the body of the last lumbar vertebra on the fore surface of the first sacral vertebra. (See annexed woodcut.) It was observed in a child. The arching-in of the back and the prominence of the belly are very remarkable.

CASE OF DR. ROBERT, OF COBLENTZ.

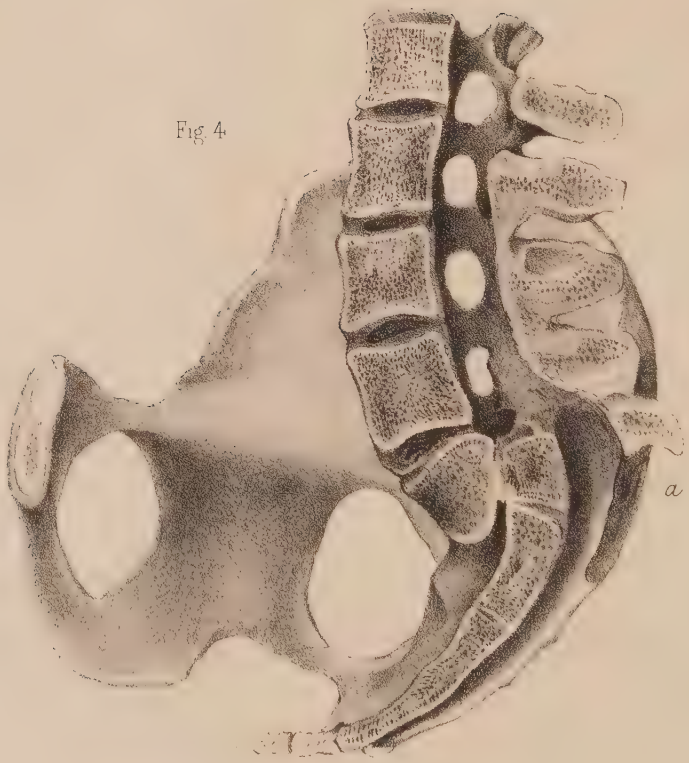
Case 6.—G. Braun has described[1] a case which exhibits another variety of this deformity. The patient, A. N—, was born with spontaneous amputation of the right arm; she began to walk very late. When she came under obstetric care she was twenty-seven years old; the abdomen was much overhanging. The conjugate diameter measured only 2″; the transverse diameter of the outlet was 2″. There was an angular curvature of the sacrum in the middle. She was delivered by Cæsarean section, and died. The skeleton measured 42½″. The bodies, arches, and spinous processes of the five lumbar vertebræ were equally and strongly developed. Between the sacrum and last lumbar vertebra was a supernumerary vertebral arch, and spinous process; a corresponding vertebral body was not discovered. There was extreme lordosis of the lumbar vertebræ, contraction of pelvis through congenital fault of development, but no disease of the bones. It seems doubtful whether this was a pure case of spondylolisthesis. The interesting feature is the intercalation of a vertebra between the last lumbar vertebra and the sacrum.

Case 7.—Dr. G. F. H. Birnbaum[2], in a memoir devoted to the illustration of the obstetric relations of the lumbar vertebræ, describes a case which appears to be an example of spondylolisthesis. A woman, four feet high, was in her first labour. There was great inclination of the pelvis. Immediately above the sacrum the spine sank in a deep arch for 2″, forming a groove-like depression. The compensation for this lordosis lay in a strong back-displacement of the sacrum, and above in a strong kyphosis of the thoracic vertebræ. She had suffered in tender infancy from pains in the back and incomplete paralysis. The uterus was much overhanging. She was delivered by cephalotripsy, and recovered.

Case 8.—Professor Breslau has described two cases. The

[1] 'Monatsschrift für Geburtskunde,' 1857.
[2] Ib., 1860.

Fig. 4.



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Dr Westmacott. dir.

W West. lith.

Fig. 1

Fig. 2.

Dr Westmacott dir.xt

W. West lith.r

first[1] has no obstetric history. Breslau discovered a dried pelvis presenting the deformity under notice in the Anatomical Museum of Munich. The fifth lumbar vertebra projects beyond the first sacral vertebra.

Case 9.—The history of Breslau's second case[2] is briefly as follows:—The patient was forty-three years old, and was admitted into the hospital under the professor's care in April, 1861. The lumbar vertebræ were sunk in forwards. She had been healthy until the age of seventeen or eighteen, when, from carrying heavy weights, she experienced severe pains in the sacral region, and the curvature of the back followed. An attempt was made to deliver by turning; then by cephalotripsy. She died undelivered, of exhaustion and hæmorrhage. The brim was contracted to 2″ 10‴. The dislocation of the last lumbar vertebra was complete. It was anchylosed with the upper sacral vertebra. Both had lost in size. (See Pl. IV.)

Case 10.—The next case is that of a woman whose labour is described by Hecker.[3] She fell in labour with her first child when forty-five years old; the cord prolapsed; there was narrowing of the pubic symphisis; delivery was effected by forceps with difficulty. The patient died of uræmia. The conjugate diameter was reduced to 3″ 3‴. The contraction was caused by the sinking of the last lumbar vertebra. There was a rudimentary false vertebra between the first sacral and the last lumbar vertebræ. The pelvis is minutely described and figured by Olshausen.[4] (See Pl. V.)

Case 11.—Dr. Lambl, to whose researches into the nature and origin of spondylolisthesis I shall presently refer, adds the

[1] Scanzoni's 'Beiträge zur Geburtskunde.'
[2] 'Monatsschrift für Geburtskunde,' 1861.
[3] Ib., 1856.
[4] Ib., 1861.

following case:[1]—There is a pelvis in the Vienna Museum of Pathological Anatomy which was described by Rokitansky in 1839. It is of gigantic dimensions. There is no obstetric history attached. The lumbar vertebræ have slipped down, so that the promontory is formed by the lower half of the fourth; the conjugate diameter is reduced to 2″ 9‴. The intervertebral cartilage belonging to the sacro-vertebral articulation had entirely disappeared. There was complete fusion of the last lumbar and first sacral vertebræ. Lambl describes traces of hydrorachis in this pelvis.

Case 12.—I will now relate a case which occurred under my own observation, 17th September, 1863. Mrs. A—, æt. 34, was sent to me by Mr. Morriss, of Barking Road; has had five children, and, four years ago, an abortion. The first three labours were all easy. In the fourth labour, which occurred seven years ago, the midwife attending had some "trouble in gaining the head." The patient describes herself as having been severely pressed by the midwife upon the back. Since that period she has been unable to stoop, and has no strength in the left side. She had fever, described as rheumatic, following this labour; was much blistered to relieve the pain; was admitted into the London Hospital under Dr. Frazer, and attended as an in- or out-patient fifteen months.

There seems to have been some degree of paraplegia after this labour. She had a fifth labour five years ago; the child was stillborn; there was obstruction to the passage of the shoulders; the child died in the birth. She still suffers great pain in the back, and cannot stoop. She reckoned that she was now three and a half months pregnant. An important question to decide was as to the expediency of inducing labour prematurely. On examination I found a marked depression of the last lumbar-vertebra inwards; and above this, the three next lumbar vertebræ projected outwards

[1] "Das Wesen und die Entstehung der Spondylolisthesis." Scanzoni's Beiträge zur Geburtskunde,' Dritter Band, 1858.

in a curve; the right hip was higher than the left; she had no power to bend the spine; in order to stoop, is compelled to find a rest for her hands, and then to bend upon the hip-joints. By digital examination I could not reach the true promontory formed by the sacrum, or the assumed false one formed by the lumbar vertebra. She complained that pressure by the finger on the surface of the sacrum, either inside or outside, caused pain.

Regarding the history of obstruction in her last labour, and the painful irritable condition of the spine, which might be liable to injury by the passage of a mature child, I advised the induction of labour at the end of even months' gestation. An appointment was made to carry out this operation on the evening of the 16th January. I met Mr. Morriss at 4.30 p.m. The cervix uteri admitting the tip of the finger, I introduced the medium-sized bag. In an hour the cervix was nearly fully expanded, and uterine action was excited. I then punctured the membranes, and the case was left to the unaided powers of the uterus for two hours. The pains continued, and, although pretty strong, did not cause any advance of the head. At 8.30 p.m., the pains having still no effect, I applied the forceps; the instrument locked well. Moderate traction was made, pains aiding, but the head did not advance. The deformity of the brim of the pelvis and the size of the head were too great. I gave chloroform and turned by the bimanual operation described by Dr. Braxton Hicks. The uterus contracting firmly, and the liquor amnii having escaped, the turning was not easy; a bunch of cord came down. The trunk and shoulders were delivered without difficulty; the head offered considerable resistance, and required some force to extract it. The extraction of the head occupied ten minutes. At the moment of birth there was no pulsation of the heart. The lips became cyanosed. In a minute the heart beat faintly, and two or three feeble inspiratory movements were made. The pulsations ceased, and the child could not be restored. It was of large size, the head being very firm. Its development indicated eight and a half months' pregnancy. On the left side of the head,

which had to travel over the projecting angle of the vertebræ, there was a scalp-bruise. The child had suffered from compression of the brain; the slight rally after birth was not sustained. On examining during labour, the sharp projection overhanging the sacral promontory was plainly felt. The uterus contracted well and cast placenta. The labour was terminated at 9.30 p.m., the whole operation having occupied five hours. I returned to town by the 10 p.m. train. Two days afterwards there was some febrile movement, abdominal pain, and tenderness of the lumbar spine. The fever increased, and for some days there was some anxiety as to the issue, but she ultimately did well.

Judging from the examinations made during labour, and the transverse diameter of the child's head, which required force to bring through the brim, the space between the symphysis pubis and the false promontory formed by the overhanging fifth lumbar vertebra may be estimated at 3″6‴. The pelvis itself seemed of normal proportions; there was no evidence of disease of the bones elsewhere than in the spot indicated. I had no doubt but that a living child might have been born had the labour been induced a month earlier, and we could but regret that the patient's miscalculations had frustrated the hope we had entertained.

The nature and modes of origin of Spondylolisthesis.

With the foregoing twelve cases before us, we may hope to arrive at conclusions broader than those which have been based upon the study of smaller groups. We shall see that conclusions thus built upon small groups may each be true; and, consequently, that no one of them is absolutely and exclusively true.

It is, in the first place, necessary to distinguish from true spondylolisthesis, the essential feature of which is an actual dislocation, with or without subsequent anchylosis of the lumbar vertebræ forwards and downwards into the cavity of

the pelvis, from contraction of the pelvis caused by curvature of the spine. Almost all museums contain examples of curvature of the spine encroaching more or less upon the space at the pelvic brim. Mr. Shaw[1] particularly describes this kind of deformity. He describes a case of a woman who died after the Cæsarean section; "that which at first view appears to be the promontory of the sacrum are the bodies of the three lower lumbar vertebræ, which have fallen forward so as to occupy the cavity of the pelvis." Such a case approaches very closely in form, and quite in obstetric results, to spondylolisthesis, but still differs in nature. In cases of lateral curvature of the spine, which are independent of rickets, the pelvis, Shaw says, is seldom or never disturbed.

Kilian, who first detected the exact nature of this deformity, assigns as the first condition of its origin a pathological process, the expression of some antecedent dyscrasia, probably scrofulous or tuberculous; as the second condition, a local softening between the last vertebræ and the sacrum, and in the ligaments, attended or followed by inflammation. He denies that the deformity is of congenital origin. On the other hand, Spaeth, finding no trace of local disease, concluded that the deformity in his case (Case 4), at least, was of congenital origin.

Dr. Roberts's case, if indeed a true example of spondylolisthesis (Case 5), must undoubtedly be regarded as congenital.

Dr. G. Braun's case (Case 6), seems also to have been of congenital origin. Conjointly with other deformities, he found a supernumerary vertebral arch and spinous process, but no disease of the bones. There was great forward curvature of the lumbar vertebræ; but it is not clear from his description that there was any real dislocation or sliding down of the lumbar vertebræ upon the sacrum, such as is essential to satisfy the definition of spondylolisthesis. The observation, however, is interesting as an instance of an abnormity of structure since affirmed to have an important

[1] 'Nature and Treatment of Distortions of the Spine,' &c., 1823.

connection with the deformity under consideration. Under what circumstances the development of a sixth lumbar vertebra may arise is henceforward a question of more than mere physiological interest. Mr. Huxley, in his recent course of lectures at the Royal College of Surgeons, stated that a sixth lumbar vertebra sometimes occurred in man; and that in some anthropoid apes there were only four lumbar vertebræ. As these deviations from the normal type have been observed apart from any distortion, it may be inferred that they were not the result of antecedent disease. But the researches of Dr. Lambl appear to suggest, if not to prove, the hypothesis that the formation of a sixth lumbar vertebra may be the consequence of disease of the spinal column, as if the developmental force in early life were exerted to throw out a new protection for the spinal cord to compensate for the loss or deficiency of parts of the natural vertebræ. Thus Lambl, subjecting the five pelves exemplifying spondylolisthesis known to him to a more minute examination, discovered in all of them distinct traces of hydrorachis. And in conjunction with marks of this disease he detected parts of a supernumerary vertebra. His conclusions, as applied to the explanations of spondylolisthesis, are as follows:

1. There is lumbo-sacral hydrorachis which constitutes the first condition of a deformation of the fifth lumbar vertebra.

2. There follows a lengthening and thinning of the vertebral arches, and a widening of the canal. This brings about a displacement of the articular processes, and the inferior oblique processes undergo a torsion of their articular surfaces, which favours their sliding through the oblique processes of the sacrum.

3. Under these circumstances the strong hold which the body of the vertebra has in its articular processes is lost, and it acquires the disposition to slip down.

4. The special size, compressibility, and extensibility of the intervertebral cartilage of the lumbo-sacral joint, to which the greater mobility of this part of the spinal column is due, cause the lumbar vertebra, as soon as its articular attachments

are lost, to glide down under the weight of the body; and this is always forwards, the direction being determined by the shape of the body, which is higher in front, lower behind; by the normal anterior curvature of the lumbar vertebræ; and by the anterior obliquity of the articular surface of the sacrum.

5. In other cases the attachments of the articular processes may be abnormally modified. This happens through the formation and defective development of a supernumerary vertebra, which may occur in combination with a fœtal hydrorachis. An incomplete intercalary vertebra, the body of which may present only a thin lamina, whilst the arch and processes may be more or less completely developed, forms, between the last lumbar and the first sacral vertebræ, a wedge driven in from behind, which thrusts the lumbar vertebra forwards. Under this motion the intervertebral cartilage is inordinately compressed, and at last its structure is destroyed. The complete destruction of the intervertebral cartilage brings the bared surfaces of the bones into contact, whence other changes ensue, as rounding off of the fore edge of the sacrum; compression of the opposed surfaces of the lumbar vertebra and sacrum; wedging in of the fore edge of the sacrum into the lower surface of the lumbar vertebra, so that this looks as if riding upon the sacral edge; or synostosis of the joint by means of a more or less complete fusion of the dislocated vertebra with the sacrum.

Consequent upon this dislocation there occurs a torsion of the pelvic axis. The plane of the brim is thrown more nearly into the vertical direction; and thus is caused the extreme prominence of the abdomen, and the overhanging of the pregnant uterus, which have been remarked in cases of Spondylolisthesis.

It may be remarked that Lambl gives new drawings and descriptions of the Prague and Paderborn pelves, in order to prove that the deformity in these is accounted for by the congenital defects above detailed.

On the other hand, Professor Breslau, minutely examining his second case (Case 9), by the light of Lambl's memoir, finds in it no support for Lambl's theory, and foretells for that

theory a heavy fall. He discovers no intercalary vertebra. He finds no scar or other trace of hydrorachis. He finds, indeed, an aperture on the posterior surface of the sacrum in the position described by Lambl, but contends that this is simply a normal formation, called by many anatomists the hiatus lumbalis.

Here I may observe that I have examined a large number of pelves in reference to this point. My observations coincide very nearly with those of Breslau. The hiatus lumbalis, corresponding closely with the figures given by Lambl as indicating spina bifida, is not uncommon. It occurs frequently without displacement or deformity. It certainly is no constant mark of antecedent spina bifida. Again, the intercalary or supernumerary vertebra occurs quite independently of spina bifida. And lastly, in none of the numerous cases of spina bifida which I have recently examined was there any spondylolisthesis, or other lumbo-sacral or pelvic deformity. There is one preparation in University College which appears to be especially in point. It comes from a woman aged thirty-two, the mother of several children. There is no spondylolisthesis nor curvature.

Rokitansky also has given a description of the origin of the Vienna case, which is at variance with that of Lambl. The distinguished pathologist attributes the spondylolisthesis to primary atrophy of the intervertebral cartilage.

Olshausen, in the memoir referred to, examining the pelvis of Hecker's case (Case 11), describes the last lumbar vertebra as partially atrophied. He found an aperture between the last lumbar vertebra and the sacrum, and in this fissure a small mass of bone (see fig. 5). He says the hypothesis of Lambl is not applicable to this case; that every sign of an antecedent hydrorachis is wanting. Olshausen interprets the appearances in his specimens, as follows:—Through some diseased process, either intra-uterine or in early infancy, the greater part of the body of the last lumbar vertebra and of the first sacral vertebra were destroyed, and partial synostosis of the remains had taken place. At the same time the penultimate intervertebral cartilage had disappeared. The

small remains of the two vertebral bodies had subsequently to bear the pressure of the spinal column, and protruded forwards, forming a considerable lordosis and slight spondylolisthesis.

If my own case (Case 12) be a true case of spondylolisthesis, it can hardly be doubted that this deformity may arise from injury. There was no trace of spina bifida, but a history of good health and sound structure until after a severe labour. It may, indeed, seem difficult to account for a dislocation of the last lumbar vertebra upon the sacrum by manual pressure, however violent. But the history of the case seems to show that direct violence was only the first cause. The fever, the quasi-rheumatic pains, the partial paralysis persisting for many months, indicate a chronic inflammatory process, attended probably by softening of the bones, and producing gradual dislocation and anchylosis. It may also be conjectured that a very limited degree of osteomalacia, arising, as this disease commonly does, during pregnancy or child-bed, may have complicated the case.

The first conclusion suggested by the study of the foregoing cases must, I think, be that they are too few in number to justify any absolute, much less any exclusive, theory of the mode of origin of spondylolisthesis.

2. That, reasoning both upon the known cases of spondylolisthesis and upon the surgical history of dislocation of the vertebræ in the dorsal and cervical regions, it cannot be denied that vertebral dislocation may occur from other than intra-uterine causes.

3. That, admitting the possibility of spondylolisthesis occurring as a consequence of spina bifida in the mode Lambl describes, it must also be admitted that it may arise as a consequence of osteomalacic, scrofulous, or inflammatory disease of the bodies of the vertebræ, and from direct injury.

Obstetric relations of Spondylolisthesis and other forms of Spinal Distortion.

The obstetric relations of the spinal column have scarcely attracted the study they deserve. Attention has been too much concentrated upon the deformities of the pelvis proper, as if these were the sole causes of mechanical obstruction to labour. Yet it is certain, as several of the preceding cases show, that, with a perfectly well-developed pelvis, the lumbar vertebræ may so encroach upon the brim and cavity of the pelvis, as to render the passage of a mature fœtus almost, if not quite, impossible. This being the case, it deserves to be considered whether this particular kind of deformity may not impede labour in such a manner as to call for particular modes of treatment.

The vertebral column may be distorted from four principal causes, namely, from rickets, from osteomalacia, from shortening of one leg, and from spondylolisthesis. Each cause produces its own peculiar form of distortion.

1. Rickets may cause either anterior curvature of the lumbar vertebræ, *i. e.* lordosis, or lateral curvature; and in some cases there is a combination of the anterior and the lateral curvatures, and even a degree of torsion of the column upon its long axis, giving to one side of the bodies of the vertebræ an anterior aspect. In the case of the lateral curve there may be no encroachment upon the pelvic brim; the pelvis itself may remain of normal size, although it not uncommonly shares in the morbid process which affected the spine. But in nearly every case of lumbar lateral curvature which I have examined, whether in the dried skeleton or in the living body, I have observed a marked obliquity of the pelvic brim. For example, a line drawn at right angles from the symphysis pubis will not strike the centre of the lumbo-sacral joint, but the promontory will stand on one side; and this side, or half of the brim, will be notably smaller and different in shape from the other. In this case the primary vertebral distortion is not, in itself, an obstacle to

easy labour; it is the secondary asymmetrical distortion of the pelvic brim. This asymmetrical distortion of the pelvis, as a consequence of lateral curvature of the spine, is, I believe, universal, whatever be the cause of the curvature. The dictum of Shaw, that "the pelvis is seldom or never distorted in those cases of lateral curvature of the spine which are independent of rickets," is not strictly correct.

2. In the second volume of the 'Obstetrical Transactions' I have described and figured a case of 'Asymmetrical Distortion of the Pelvis, the result of Unequal Length of the Legs.' The left ankle had been broken in early life; the shortened leg had caused lateral curvature of the spine; and this, in its turn, had caused the unequal development of the two halves of the pelvis. Here there was no evidence of disease of the bones.

In this form of pelvic deformity delivery of a full-grown fœtus of the natural powers may, in many cases, be effected. But, if the occiput should be directed to the contracted side of the brim, there will, probably, be obstruction, requiring the long forceps, or even turning, and possibly, although very rarely, craniotomy. When the curvature affects the dorsal vertebræ, or the dorsal and upper lumbar, the pelvic deformity may be very slight, or none may be detected. This point is well exemplified in several skeletons in St. Thomas's Hospital.

In the case of strong anterior curvature of the lumbar vertebræ there is commonly a complication with contracted pelvis, especially a narrowing of the conjugate diameter. This narrowing of the pelvis is in itself a sufficient cause of obstruction to the labour. But in addition to this the arching forwards of the lumbar vertebræ may be so great, the spine may so hang over the brim, as also to constitute a serious obstacle to the descent of the head. There is a remarkable example of this double deformity in St. George's Museum. The woman died undelivered during the performance of craniotomy.

3. In osteomalacia a part of the loss of stature is commonly due to the sinking down of the lumbar vertebræ into the

pelvic cavity, aided by the doubling up of the sacrum. There is not true spondylolisthesis, or gliding of one vertebra upon another, but a general compression and squatting of the vertebræ. There is a well-marked and interesting case of this deformity in Bartholomew's Museum, prepared by Dr. Greenhalgh. The patient had died after the Cæsarean section. The fifth lumbar vertebra is entirely contained in the cavity of the pelvis. In Dr. Murphy's case of Cæsarean section, of which the pelvis is represented by a model in University College, the fifth lumbar vertebra has sunk about one half into the pelvic cavity. It is obvious that such a complication of the ordinary pelvic collapse consequent upon osteomalacia must greatly aggravate the obstetric difficulty. It will exclude all hope of making room for the passage of the child by dilating the pelvis, a process that has once or twice been successful in simple pelvic distortion from osteomalacia.

4. The history of the cases collected in this memoir will suffice to prove the formidable nature of true spondylolisthesis when pregnancy occurs. The obstetric difficulty occasioned appears to be twofold. In the first place, there is the body of the fifth lumbar vertebra overhanging the pelvic brim, and partially, or entirely, fallen into the pelvic cavity. In the second place, there is commonly a great deviation from the normal axis of the brim. The projection of the lumbar vertebræ also causes an important deviation from the normal shape and position of the uterus; it throws the fundus so much forwards that the uterus is made to lie across the pubes like a sack. The obstacle presented to the entry of the head into the pelvis is far more serious than in simple contraction of the conjugate diameter from undue prominence of the promontory. In this latter case, unless the contraction is very great, it is generally possible to bring the head through by the forceps, by turning, or by craniotomy. In passing, I may be excused for stopping to point out one feature in the mechanism of labour with projecting promontory. When in such a case the child is turned, the head, to enter the pelvis, must describe a curve of which the promontory is the centre; the parietal or temporal bone of one side is brought into

contact with the jutting promontory; then, traction being exerted, the opposite side of the head, describing a large circle, rolls over the symphysis, the side in contact with the promontory remaining nearly stationary until the head slips into the cavity with a jerk. The process is nearly similar to that by which the head normally issues from the pelvis, in which the symphysis is the centre, and the arc of motion is performed by the part of the head which occupies the cavity of the sacrum. Observance of this law is a necessary condition for the safe and easy delivery by turning, or in arm-presentations with projecting promontory. The traction must be directed as much backwards as possible, not simply in the direction of the axis of the brim, but even more backwards if possible, so as to make the head ride past the symphysis. For want of attention to this, I have known the most strenuous efforts to be continued for many hours in vain. The force has failed because exerted in a wrong direction; the head has been pulled upon the symphysis, being bent nearly at a right angle with its body. In several such cases I have effected the delivery in a few minutes with comparative facility. The same principle must be borne in mind in cases of spondylolisthesis; but if the deformity be very marked, and especially if one or more vertebræ have fallen into the pelvic cavity, delivery by turning, even after craniotomy, will very likely prove impossible. In ordinary cases of pelvic deformity, as soon as the promontory is doubled, the difficulty is over; the passage through the cavity and inferior strait offers no material obstacle. But in the case of spondylolisthesis the cavity itself is so occupied by the vertebræ that the child's head cannot enter. Hence, in advanced cases, there is no resource but the Cæsarean section. It is needless to point out that the indication is decided for the induction of premature labour whenever the opportunity presents itself.

The intercalation of a supernumerary vertebra may also be occasionally a cause of the curvature of the spine, possibly, as Lambl contends, of spondylolisthesis, and thus secondarily of pelvic distortion; but certainly neither consequence is necessary. There are several examples of intercalated vertebræ in

Guy's Museum. In one case, No. 1000[50], there is a full-sized sixth lumbar vertebra, without any distortion. In another case, No. 1000[90], there is a sixth lumbar vertebra, associated with a lateral curvature of the spine, and causing loss of symmetry of the pelvic brim.

Caries of the bodies of the lumbar vertebræ may occur without inducing any abnormal curvature of the spine or distortion of the pelvis. It is more likely to cause a certain amount of spondylolisthesis.

There is still another affection of the vertebral column which appears to me to possess obstetric interest. Kilian has written an excellent memoir on what he calls the Acanthopelys. It is distinguished by sharp ridges or thorny projections on the linea ileo-pectinea; these projections may wound the uterus, and even cause rupture. There is a singular skeleton in the Middlesex Hospital Museum, which belonged, I am told, to a man who was twenty years a patient in that hospital with "scrofula and cancer." The bodies of many of the vertebræ possess large bony excrescences, some of which project so much that similar formations in a pregnant woman could not fail to injure the uterus.

N.B.—There is a discrepancy in the dates connected with the Brussels case; Kilian is reported, in Gluge's report to Lambl, to have seen the skeleton in 1836; the patient is said to have entered the Maternité in 1838.

Mr. W. Adams observed that he had listened to the paper with great interest, as the vertebral deformity or displacement described was but little known, and required further investigation. It seemed to him that the condition described as spondylolisthesis might depend upon several causes. Rickets might give rise to it; but this would be at once apparent by the general evidences of rickets in the development of the skeleton, distortion of the legs, &c. Caries of the first sacral bone might give rise to it; and some years after destructive disease had ceased, and anchylosis produced, the prominence forward of the last lumbar vertebra might encroach considerably on the pelvic cavity. Mr. Adams had

seen a few examples of this, and had one now under his care at the Orthopædic Hospital. In this case the girl presented extreme lordosis in the lumbar region, with corresponding projection of the stomach, and a sharp posterior angular prominence corresponding to the first and second sacral bones. In all probability this girl, now twenty-one years of age, could never have a living child, in consequence of the projection of the last lumbar vertebra into the pelvic cavity. Congenital dislocation of both hip-joints produces extreme lordosis in the lumbar region, and, therefore, would probable give rise to the condition described as spondylolisthesis; and Mr. Adams has also seen it produced to some extent by a sharp rotation movement, and lateral distortion affecting the lower lumbar vertebræ, as in a case described by him in the 'Medico-Chirurgical Transactions,' vol. xxxvii. It was evident that a variety of causes might produce the vertebral displacement mentioned by Dr. Barnes, whose analysis of the cases recorded in the paper would form the basis of further observations on this subject.

Mr. Brodhurst observed that this was a subject which had not received much attention in this country. He considered that the affection in question was not a true dislocation, as it was described by the author of the paper, and that it differed materially from ordinary lordosis, and from those forms of lordosis which are produced by congenital dislocations of the heads of the femurs by some very rare forms of caries of the bodies of the vertebræ, &c.; but it was induced, he said, by softening of the bodies of the vertebræ, and especially by softening and yielding of the ligaments which unite the lumbar vertebræ and the sacrum. Thus was occasioned some displacement of the bodies of the lumbar vertebræ downwards. The positions of the spinous processes showed that caries was not the cause of this affection, as had been suggested, and a section of the bodies of the vertebræ showed this fact still more clearly. He contended that this condition was due to rachitic inflammation and softening of the osseous and ligamentous structures.

Dr. Barnes said that in studying the subject he had felt the want of a more extended practical knowledge of diseases of the bones than he possessed, and was therefore glad to have the assistance of Mr. Adams in discussing it. He was quite prepared to believe that caries of the upper part of the sacrum might cause the deformity. It was one cause, and did not exclude the possibility of other causes; nor did he gather from Mr. Adams's observations that that gentleman regarded caries as the sole cause. The case of the child figured by Robert, of Coblentz, was not an undoubted case of spondylolisthesis; and he was much interested in the suggestion of Mr. Adams, that the deformity was probably due to disease of the hip-joints, causing extreme lordosis of lumbar

vertebræ without dislocation. He wished it to be borne in mind that this deformity consisted in a real slipping down of the fifth lumbar vertebra from the sacrum. It was a true dislocation, and not simply a curvature, of the spine. It was seen quite independently of rickets. It caused serious obstruction to labour, even in cases where the pelvis itself was free from distortion. He believed that this and other vertebral deformities possessed a great obstetric interest, and would, when more attention was directed to the subject, receive further illustration.

APPENDIX TO THE FOREGOING MEMOIR ON SPONDYLOLISTHESIS.

By Robert Barnes, M.D., F.R.C.P.,

OBSTETRIC PHYSICIAN TO, AND LECTURER ON MIDWIFERY AT, ST. THOMAS'S HOSPITAL.

In the memoir on Spondylolisthesis which I had the honour to submit to the Obstetrical Society, I endeavoured to collect all the known cases of this form of distortion. Since the reading of that memoir a new and very interesting case has been published by Dr. R. Olshausen.[1] A summary of this case may, I hope, be acceptable, as helping to illustrate a new and important point in practical midwifery.

The patient, æt. 24, was admitted in June, 1863, into the University Lying-in Hospital of Halle. She had never suffered from rickets. When eighteen years old she had been in the surgical clinique on account of disease associated with severe pain in the sacrum and hips. She had previously been in good health, doing work, and being *quite straight*. Awaking one morning she found that she was unable to straighten the spinal column, and was forced to walk with the body bent forwards. She had no fever. The body was strongly bent forwards. The inclination of the pelvis

[1] 'Monatsschrift für Geburtskunde,' March, 1864.

was increased. There was persistent pain in the sacral joints. The pain was relieved and she was dismissed. During the six years that passed before her admission under Dr. Olshausen she had been able to get about, but she never recovered the power of straightening the back. The lumbar region of the spine was strongly bent inwards. The position and form of the sacrum seemed normal. The apparent promontory was felt very low down in the pelvis, and close to it was felt a very large pulsating vessel, much larger than it is usual to find the vessels of the vagina. This turned out to be the common iliac artery, brought down by the sinking of the lumbar vertebræ. The conjugate diameter was reduced to three inches. As in other cases of spondylolisthesis, there was extreme overhanging of the belly.

The Cæsarean section was resolved upon as the only resource. The patient died on the fourth day, of peritonitis. The child was reared. The skeleton, of which a figure is submitted, showed that the fifth and fourth lumbar vertebræ had slipped down into the pelvic cavity, so that a line drawn from the symphysis pubis to the lower margin of the third lumbar vertebra would represent the conjugate diameter of the pelvic brim. There was synostosis of the last lumbar and upper sacral vertebræ. Below the last lumbar arch the sacral canal was open for its entire length, in the form of a complete sacral spina bifida. There was no trace of a rudimentary intercalary vertebra, to support Lambl's theory of the origin of this deformity.

I will not intrude any commentary upon this case, further than to call attention to the fact that the disease which led to the falling down of the lumbar vertebræ arose when the patient was eighteen years of age. Although the open condition of the sacral canal must have been congenital, it is not certain that this condition was the cause of the disease which attacked the bones. We have, therefore, another case to prove that spondylolisthesis is a deformity that may arise in adult life.

DESCRIPTION OF THE ILLUSTRATIONS TO DR. BARNES' PAPER.

PLATE III.—Fig. 1. The Prague pelvis. After Kilian.
Fig. 2. The Paderborn pelvis. After Kilian.

WOODCUT.—Doubtful spondylolisthesis. Congenital lordosis. After Robert, of Coblenz.

PLATE IV.—Pelvis of Breslau's second case of spondylolisthesis.

,, V.—Anterior and posterior aspects of the sacrum of case described by Olshausen, showing a rudimentary false vertebra between the last lumbar and first sacral vertebræ.

Wednesday, May 4th, 1864.

Dr. Oldham, President, in the Chair.

Present—41 Fellows and 2 visitors.

The following gentlemen were elected Fellows of the Society:—Mr. E. Des Forges, South Cave, Yorkshire; Mr. Hartley; Dr. G. Hasenfeld, Pesth, Hungary; and Dr. Wharton P. Hood, Lower Seymour Street.

SMALL FIBROID TUMOUR.

Dr. Barnes exhibited a small fibroid tumour which had been recently expelled spontaneously from the uterus. The tumour had been brought to him by a medical friend, whose wife was the patient. She had suffered during the preceding twelve months from repeated attacks of metrorrhagia. Two days ago the tumour was expelled. It was the size of a walnut. It was perfectly moulded to the shape of the cavity of the uterus. It resembled externally a compressed ovum. The first question to determine was whether the mass was not the product of conception. The tumour had no doubt formed in the uterine wall, and had been gradually squeezed out by the contractions of the uterus; then, being detached, it was moulded by the continuing compression until expelled. This spontaneous expulsion of fibroid tumours—the most fortunate termination—was rare.

AMPUTATION OF CERVIX UTERI.

Dr. Greenhalgh communicated the result of the case of amputation of the cervix uteri mentioned at the last meeting. The patient died some days after the operation, of peritonitis.

Dr. Barnes said the Society must feel greatly pleased with the candour displayed by Dr. Greenhalgh in informing them with the result of this case. Dr. Barnes thought the result might be taken as evidence in favour of Dr. Marion Sims' operation, in which, immediate closure of the wound and quick healing being effected, the patient escaped the tedium and danger of the process of granulation. The long maintenance of a granulating wound, such as resulted from écrasement or crushing, subjected the patient to prolonged risk of disturbing influences, amongst which hospital gangrene, or sloughing, might be mentioned. The fatal issue of this case was not favorable to the operation of amputation by the écraseur.

CASE OF CAULIFLOWER EXCRESCENCE OF THE UTERUS.

By E. F. Fussell, M.B., M.R.C.P.L., Brighton.

A sallow-looking, but not emaciated woman, married, æt. 49, two children living, youngest nine years old, had suffered from pains in the loins and hypogastric region for two years; during this time there was a constant watery discharge, often bloody. On examination a tumour was found, low in the vagina, about the size of a turkey's egg; it completely surrounded the os and cervix, so that no opening could be detected. The mass bled, but did not easily break up on pressure; it was free in the vagina, and the uterus

was quite movable. The inguinal glands were not enlarged. The tumour was removed at the Brighton Hospital, by Mr. Blaker, who used the écraseur of Dr. Braxton Hicks. She was much exhausted; swelling and redness of the right lower extremity supervened, and she gradually sank in five days.

At the post-mortem there was no evidence of peritonitis. The iliac and femoral veins were obstructed by coagula. Connected with the upper part of the uterus were a number of fibrous tumours; at its posterior surface, extending from the neck to its middle, was a soft flocculent mass, which resembled the villous disease of the bladder.[1]

The microscopical examination of the tumour showed that it was essentially made up of loops of blood-vessels, and but little fibrous tissue; there were a number of large compound and a few caudate cells. The flocculent mass was examined by Dr. Ormerod:—"The whole of this specimen is composed of little else than shreddy fibres. Some of the membranes into which the fibres run here and there take distinctly the form of vessels, and a few of them have dilated ends. The surface where it has been preserved from injury presents minute cauliflower excrescences, small, ill-defined, more like tubercular points than regular club-headed growths."

Remarks.—This case illustrates a fact which must largely influence our prognosis in these tumours. The body of the uterus was involved; had it been free from disease the operation might have alleviated for some length of time;[2] though, taking the almost absolute certainty of return of the tumour after removal, and its destructive influence, these growths are justly placed by some in the same category with cancer.

The growth in the interior was modified by the difference in structure between the neck and body of the uterus, and by the well-known fact of the changes caused by death in these tumours; yet the different grades of the two masses corresponded to the admirable description of the disease by

[1] Mr. Sibley, 'Patholog. Trans.,' vol. vii.

[2] Dr. Braxton Hicks, 'Guy's Hospital Reports,' 3rd series, vol. vii.

Dr. B. Hicks, in the paper just alluded to. It appeared, also, somewhat to resemble an interesting case described by Mr. Sibley of villous disease of the dura mater, with malignant disease of the uterus,[1] "in which the microscopical structure of the encephaloid mass in the uterus was essentially similar to that of villous disease of the bladder."

Some discussion having taken place as to the relative merit of different instruments,

Dr. Routh said that, like his compeers, he, too, had used the wire-rope écraseur. Once, in using that of Dr. Hicks, he had found himself unable to remove the tumour by it, and had been obliged to have recourse to the chain écraseur to finish the operation. The same thing had happened to him in using Weiss and Co.'s improvement on Dr. Hicks's écraseur. The instrument had bent, and he could not cut off the tumour, and was again obliged to finish it by the chain écraseur. This, in private practice, was a great drawback. Some tumours were unusually hard, and required an unusually powerful instrument. It was right, however, to add that he had since, by an experiment, tested the relative powers of the double-action chain écraseur of the French, and Weiss's wire-rope instruments, upon a cow's womb, previously hardened in spirit for days. Here the instrument of Weiss had the decided advantage. The part was cut through with comparative ease by this, and with the very greatest difficulty by the French, instrument.

Dr. J. Braxton Hicks, in answer, said that he had used nothing else but the instrument at Guy's Hospital ever since he had constructed it. All of his were made by Durroch, of St. Thomas's Street, and he could say he had never failed except in one case, where the polypus was five inches across, as large as could exist in vagina. The failures, when they occurred, were rather owing to the fault of the makers, who, in imitating the original, either overlooked the principle on which it acted or endeavoured to effect what they called improvements. The most common fault was to leave the eye of the shaft sharp-edged instead of perfectly smooth; this was why the rope snapped over heavy work. Another, which had been alluded to, was its not cutting through in large firm growths. This was owing to twisting the rope too evenly and firmly, which gave it also stiffness. If the strands were rather irregularly twisted, then it would rather cut and tear as one side was drawn down. Another point was the best mode

[1] 'Patholog. Trans.,' vol. viii.

PLATE VI.

Dr Westmacott del^t et direx^t

W. West lith^r

of tempering the wire. Durroch had taken much trouble on this point, and he believed that his make could be relied upon. Dr. Hicks did not intend his instrument to compete in strength with the chain écraseur, although it was nearly as strong; but it was constructed to be used in places where the chain could not be used—at the fundus of the uterus, or on the cervix *in situ*, &c. It was an important point not to use the rope a second time over the same amount of resistance; the cost of a new one was but small.

DESCRIPTION OF PLATE VI.

a, *a*, *a*, Fibroid tumours, one of which is cut through.
b, *b*, Surface from which the cauliflower excrescence was removed.
c, Surface of interior of uterus.

OVUM OF SEVEN MONTHS EXPELLED ENTIRE.

By Dr. Whitmarsh, Hounslow.

At 10 a.m., on April 12th, Mrs. N—, of Lampton, was taken in labour with her seventh child. All her previous children died either at the time of delivery or a few hours before. On this occasion she had only advanced seven months when labour commenced, and it did not terminate until 7 p.m. of the 22nd, when the fœtus, membranes, &c., were expelled entire, before the arrival of Dr. Whitmarsh. In this condition the specimen was exhibited to the Society.

ON THE APPLICATION OF EXTREME COLD AS AN ANODYNE IN THE PAIN ATTENDANT ON PARTURITION.

By J. Mortimer Granville, L.R.C.P. Lond., &c., Bristol.

An examination of the phenomena of labour, more especially in relation to the nature, duration, and intensity of the pain accompanying it, has led the author to the follow-

ing conclusions: — 1st. The actual pain (as distinguished from the sensation of forcing) experienced by the parturient woman bears no definite proportion to the force and efficiency of what (for want of a better name) we term "the pains" of her labour. 2nd. The sensation of pain is not invariably synchronous with the occurrence of uterine contraction, the effects of the latter being perceptible to the accoucheur not unfrequently, during examination, before his patient experiences the former.

From these circumstances, taken in connection with others well known to careful observers, it may be inferred that the pain attendant on labour is more directly related to the effects of uterine contraction (perhaps mechanical force operating on nervous tissue) than to the specific muscular act itself.

The reference of the pain to some region more or less remote from the contracting uterus or the dilating external passages (in which the seat of pain might have been supposed to be located) appears to support the last inference, whilst it clearly points to the conclusion that the pain attendant on labour is neuralgic in its character.

Acting on this theory, the author has tried the effect of extreme cold as a topical anodyne, and the result has been so constant that, after repeated experiment, he feels confidence in bringing this new method of seeking to alleviate the pains of labour before the Society, and suggesting its adoption by the profession. The method is applicable in all cases, independent of the condition of the patient, cold being already in use as a powerful means of exciting the uterus to contraction in cases of extreme exhaustion. It is perfectly free from the dangers so inseparable from the most cautious use of anæsthetics. It is perfectly manageable, and may be safely confided to a nurse; and its *rationale* is in strict conformity with the well-known principles of physiology. It is not intended to remove, but to alleviate, the pain attendant on parturition. It will be found that the power of the uterine efforts is generally increased, without any corresponding increase in the attendant suffering, the patient

being not unfrequently under the impression that the pain has ceased when the presentation continues to evidence the continuance of the expulsive force. This has been very remarkable in some of the cases, the pains appearing to be shortened when examination has proved them to be prolonged. The actual pain is sensibly diminished, the patients expressing themselves variously, but to the general effect that they are relieved of half their suffering.

The method of the application is of the greatest importance. The cold must be extreme, or it is of little, if any, service, and it must be persistent.

An apparatus was exhibited, consisting of a flat tin box, which is filled with a freezing mixture and applied to the seat of the pain.

Dr. Oldham believed some difficulty would be found in determining what was the seat of pain. Madame Boivin referred the pain during her own labours to the neck of the uterus.

ON A NEW MODE OF TREATING CASES OF VESICO-VAGINAL FISTULA.

By Alfred Meadows, M.D., M.R.C.P.,
PHYSICIAN-ACCOUCHEUR TO THE GENERAL LYING-IN HOSPITAL, ETC.

Great as have been the improvements which the last few years have witnessed in the operation for the cure of vesico-vaginal fistula, many will, perhaps, agree with me in the opinion that there is still room for advancement; and I venture to hope that the proceeding which I have now adopted with manifest success in two cases may, at least, present sufficient attraction to those who are called upon to perform these operations to lead them to make a more extended trial of it than I have been able or care to do. For, while I do not profess to any operative skill in this department, I have yet sufficient interest in the alleviation of

human suffering to make me anxious to further it by any suggestion which reason or experience may seem to dictate.

The suggestion, then, which I have to make is this—that in all cases of operation for vesico-vaginal fistula, no matter of what severity, or what proceeding has been adopted, there is no necessity, so far as regards the success of the operation, that the patient should be kept in bed or in the recumbent posture after the operation; but that, on the contrary, she may be allowed, either the same day or as soon as she may desire, to get up and go about her usual avocations, almost as if she had not been subject to any operative interference whatever.

This may, and I have no doubt will, be rather startling to many; but, in reply, I have only to urge, first, that facts are stubborn things, as the following will show, and are not to be got over by any appeal to theory or experience, when that experience is limited to one side only of the question. And, secondly, it may be shown, as I think at least, that reason is not so much against the practice as may at first sight appear; nay, rather that, strictly speaking, so far as it goes, it tells in favour of it.

The objections which will be urged against the proceeding are, no doubt, the two following—first, that it is necessary after these operations that the parts should be kept strictly quiet, and consequently all movement should be prohibited. Secondly, that it is essential for the success of the operation that no urine should come into contact with the surfaces of the fistula; and that, therefore, the upright position is wrong, as allowing the urine to rest upon the floor of the bladder, immediately over the seat of the operation.

But, in reference to the first objection, though it may be fairly conceded that the surfaces of the wound must not be disturbed if we would secure union, yet I am convinced that the movements of the body cannot affect the square inch or so of that part of the bladder where the operation has been performed, in such a way, at least, as to make one side of the wound pull in one direction, and the other in the opposite direction. No doubt the square inch in question

would move about *en masse*, in common with the rest of the bladder; but this, I contend, is practically no movement at all, at least of the kind which is hurtful; on the contrary, so long as the parts are kept together, and are moved about together, they are, in their mutual relation to one another, practically at rest. And, further, as there are no muscles, so far as I know, which can affect the bladder in the way objected to, the allowing the patient to move about is equivalent to allowing the bladder to be at rest, which is all, I suppose, that is required.

But, secondly, it will be thought that the other objection is one not so easily got over, for what more evident than the fact that in the upright position the urine must rest upon the floor of the bladder, while in the recumbent position it gravitates somewhere else away from it. I dispute this statement altogether as being in any way applicable to the case; it is not a question of gravity or weight, but it is a question of simple contact; and I maintain that the upright position no more favours that than does the recumbent, whether it be on the back, the side, or the stomach. Contact of urine with the bladder-wall is in all cases the same; it cannot be avoided, and it matters nothing what the position of the patient.

Let me prove this. Immediately after an operation of this kind, what is the condition of the parts? The bladder, we will suppose, is empty, and the patient is placed in bed. Can it be denied that the walls of the bladder are everywhere in close apposition? No one, I suppose, will imagine that ordinarily there is any air in the bladder, or will deny that the weight which presses upon its walls in every direction through the viscera and by the superincumbent atmosphere is such that its inner surfaces are always applied to each other, except when water is present. This and this alone separates them. This being granted, let us suppose, as is the fact, that water slowly trickles into the bladder from the ureters. What becomes of it? Why, it slowly distends the bladder by a gradual and *uniform* pressure; a pressure which cannot, from the nature of things, affect one part and not

another, though all may not yield alike, because the external resistance is unequal to the inequalities of the surrounding viscera. Well, then, as fluid *pressure* cannot be applied without *contact*, and the pressure we have seen is uniform, contact must also be uniform; and hence it is clear that the part where the sutures have been applied is as much subject to the action of the urine, through contact and pressure, as is any and every other part; and this, too, no matter what the position of the patient, seeing that it is subject to a *law* which admits of no variation in the ordinary state of things.

This, I hope, is a satisfactory answer to the second objection.

But, even if this does not suffice, if it be still contended that lying on the back *is* the best position, in order that the urine may, by gravitation, be kept away from the denuded surfaces; fallacious as I maintain that argument is, then I would further ask, what about capillary attraction, and what of the attractive force, if I may so call it, of the mucus which covers the surface of the bladder for a fluid of less density? Are these circumstances beyond consideration? Nay, rather are they not cogent arguments in favour of the position I assume; and if so, the fistulous surface will, by the operation of these causes, be as much overrun by the urine as any other part, even though the recumbent posture is maintained.

Again, it may be urged that the upright position is bad, because the weight of the water in the bladder will press upon its floor, and thus tend to separate the cut surfaces. In answer to this I would only say that the blame of such a result would rest entirely with the operator for the slovenly way in which he had operated, by not securing, with his sutures, perfect communion of the parts against any such interference. Besides, I would call to mind another law bearing upon this question, namely, that *fluid, when at rest in a vessel, presses equally in all directions*. This, I think, fairly meets the case.

In short, I believe there is nothing better to be urged in favour of the treatment usually adopted than the fact that no

other has yet been suggested. I venture now to supply this deficiency, and it will not require much argument from me to prove that, if the plan which I now advocate can be successfully carried out, it is not only unnecessary, but unjustifiable, to keep a patient a prisoner and in bed, when she may be just as well about, and either in the enjoyment of society or in the pursuit of her ordinary duties. Nor need I stay to point out other manifest advantages of the one over the other.

But in this practical age and country experience in a practical question is the only test of its merit. I subjoin, therefore, two cases in which I have practised what I now preach, and with results in every way satisfactory.

The first case possesses so many points of interest that I may, perhaps, be excused for detailing it at some length.

On the 11th of June, 1862, at 4 p.m., I was sent for to see Mrs. S—, æt. 34, who was in labour with her eighth child, and from whom I learnt the following history :—Just a month previously she had been taken with all the symptoms of labour—pain, discharge, &c. Her medical man had been called to her, and remained a whole night expecting delivery, she being quite certain she had gone the full time of gestation. The pains continued for upwards of twenty-four hours, and these gradually ceased, the os uteri having dilated to about the size of a half-crown. Finally all these symptoms subsided, except that slight occasional pains and discharge came on at irregular intervals during the month following; she also increased in size; but the fœtal movements became less and less perceptible; she herself felt exceedingly ill, as she expressed it, unlike anything she had ever felt before; and to this day, I may mention, she persists in the opinion that she had been *ten* months pregnant when I was called to her. At that time she had been in labour three days, during all of which uterine action had been very severe. The liquor amnii was discharged two days previously, and had been very abundant. She was now becoming exhausted, and was vomiting a dark coffee-ground-looking fluid; the tongue was dry and coated; the face anxious; pulse quick and feeble. On

examination I found that the right *side* of the child, between the ribs and ilium, presented, but was very high up; the os was fully dilated, the parts very dry and hot, and a dark offensive discharge was present. Chloroform having been carefully administered, I endeavoured to turn, but soon found it impossible, from the very large size of the child. I accordingly perforated the abdomen, when about two pints of ascitic fluid gushed away. This enabled me to bring down the feet readily; but again the thorax stopped the way. I therefore perforated it, and more fluid came. The child then descended till the head rested on the pelvic brim, and refused to come lower; again I used the perforator behind the left ear, and about a pint of fluid flowed from the opening. In a few minutes the delivery was completed.

The patient went on very well, except that she could not retain her water and the lochia were very offensive. I made an examination about three weeks after, and discovered a very large opening in the bladder, big enough to admit nearly three fingers. The parts were exceedingly tender to the touch, and hot. Warm-water injections were ordered to be used.

About three weeks after this I again examined, and found the vagina almost completely occluded by firm fibrous bands stretching across in all directions. I succeeded in breaking them down with the finger, and then plugged with oil lint, which was repeated daily till the cicatrices healed, the opening in the bladder meanwhile remaining the same.

Two months afterwards I examined for the purpose of deciding upon an operation for the fistula. I then discovered that the upper part of the vagina was a perfect cul-de-sac, there being no trace whatever of any os uteri, or, indeed, of any uterus at all. The vagina was altogether somewhat contracted. The opening into the bladder was about one and a half inches long, and three quarters of an inch wide. Through it a part of the bladder was prolapsed; the opening was situated about two and a half inches from the meatus.

On the 29th of October I proceeded to close this opening, which I did in the way recommended by Mr. Baker Brown.

It was still impossible to discover any uterus, but this did not seem to me to affect the question of treatment as regards the fistula. The patient had not shown any symptom of menstruation since the labour. The result of this operation was that nearly one half the opening was closed. I should say that the patient was kept in the recumbent posture, as the idea now recommended had not then occurred to me.

On the 20th of August, 1863, she was again operated upon, the patient having previously tried various experiments in the hope that she might do without another operation. The opening was completely closed this time. The sutures were fastened with a clamp, and the patient was kept in bed. All seemed to be going on well, but unfortunately the sutures were removed too soon, and the parts were left in nearly the same condition as before. Soon after this she obtained a situation where it was necessary that she should be constantly about, and then it occurred to me to question the necessity for maintaining the recumbent posture after these operations. I determined to try the experiment, having satisfied myself that there was no sufficient reason for the old practice.

On the 3rd of January, 1864, I closed the opening again, which was then just large enough to admit the end of the finger. I applied three sutures, merely twisting them, without the use of either clamp or shot. The operation occupied but a few minutes; the patient had no chloroform; she went about just as usual directly after it, and the people who were under her supervision knew nothing of what had been done. I allowed the sutures to remain in six weeks, and the result was most satisfactory. The fistula was quite cured, with the exception of one little spot at the corner, which was not quite secured by the sutures. I, however, pared the edges, applied one wire, allowed the patient to go about again, removed the suture, after three weeks, and now she is perfectly well and water-tight.

As I have alluded to the fact of the uterus having disappeared, the inquiry will naturally be made as to the menstrual

function. About nine months after the labour violent pain and symptoms resembling those of metritis occurred; I took this to mean an attempt at menstruation; no discharge, however, appeared. A month after, somewhat similar, though milder, symptoms occurred, and for four days the urine was highly coloured with blood; she had, in fact, menstruated either from the uterus into the bladder or vicariously from the bladder itself, and this is the state of things at the present time, menstruation being regularly, though painfully, performed from the bladder.

The only other case in which I have followed the practice here recommended was that of Mrs. W—, æt. 40, suffering from vesico-vaginal fistula of nine months' standing, the result of tedious labour. The opening in this case was rather more than half an inch long, and situated about two inches from the meatus. I closed this on the 19th January of this year, using five sutures. The patient kept in bed during the day the operation was performed, as the chloroform made her feel very sick; but the following day she was about as usual. On the 26th of February I removed the sutures; the wound had healed perfectly, and all urine passed through the proper outlet. She continues well to this date, March 9th.

I hope I have now said and done sufficient to justify a further trial of this plan; of its manifest advantages there can, I think, be no doubt. I regard it of importance that plenty of sutures should be used; wire is, no doubt, the best material, and they should be carefully, closely, and tightly twisted. I do not think any kind of clamp or shot is necessary; indeed, the simpler the proceeding is, the better for both patient and operator. Plenty of time should be given for the formation of perfect union; in some persons the reparative process is much slower than in others. There is no reason why the sutures should not remain two, three, or even more months in some cases, and by their support union, which was at first feeble, may in time become firm and effective.

Dr. OLDHAM thought it a great point to save patients from the irksomeness of wearing apparatus, and by showing that the confinement hitherto considered necessary was not required, Dr. Meadows had done good service.

A CASE OF HYDRO-ENCEPHALOCELE.

By A. HARRIS, M.D., L.R.C.P. Edin., Camborne, Cornwall.

I HAVE thought the following case worthy of communicating to the Obstetrical Society, from the rarity of its occurrence, and with a desire of eliciting from the members the mode of treatment that would be most likely to benefit in cases of this nature.

I was called to attend Mrs. C— in her twelfth confinement, on the 26th of July, 1860. I found her suffering from severe and frequent labour-pains. On making an examination I found the os uteri fully dilated, with the membranes unruptured and bulging. In endeavouring to ascertain the presentation the liquor amnii escaped, but on the pain returning I still felt a tense bag of fluid occupying the os, which bag was covered with hair, and, on passing my finger around it, I discovered that it was attached to the head by a narrow neck. It did not retard the labour, and a few uterine contractions sufficed to expel the infant. The tumour was hanging from the back of the head, formed by a prolongation of the scalp, and contained fluid, its interio communicating by a rounded opening, about the size of a florin (through the upper part of the occipital bone) with the interior of the head. In circumference it measured nine inches, and in length four and a half. The child was full grown, and apparently healthy. The next morning I punctured the tumour at the lower part with a small trocar and canula, and removed about four and half ounces of transparent fluid. On the application of heat and nitric acid this was found to be highly albuminous. After the escape of

the fluid the brain was felt protruding through the opening in the occipital bone.

On the 6th of August I found the sac again full, and removed about the same quantity of fluid by the same means; this was much less albuminous. The appearance of the infant was much as before. It partook heartily of milk.

On the 15th I was informed by the mother that the sac had again filled, and had emptied itself through one of the openings I had made. The child still continued hearty, but was wasting. From this time I saw the infant occasionally, and found that it was gradually failing. The fluid continued to escape at intervals through the puncture up to the 15th of November, 1860, when the child died.

I applied a bandage, but the parents thought it injurious, and would not consent to its use. Tonics were also administered at the commencement.

The mother was not aware of having had any fright or accident, and always enjoyed good health.

An examination after death was not permitted.

CASE OF DESTRUCTIVE INFLAMMATION OF THE HIP-JOINT IN A PUERPERAL WOMAN.

By Thomas William Nunn, F.R.C.S.,
SURGEON TO THE MIDDLESEX HOSPITAL.

This case of destruction of the hip-joint is laid before the Obstetrical Society on account, in a great measure, of the insidious manner in which the disease developed itself, and also on account of its apparent independence of uterine phlebitis, purulent infection, or of puerperal fever as ordinarily manifested.

The patient was admitted into the Middlesex Hospital under my care, March 9th, and died March 30th. She was therefore under observation during twenty days.

Twenty-seven days previous to admission she was delivered at Queen Charlotte's Lying-in Hospital, of her second child. Her stay in that hospital was during twenty-five days.

Case.—"Annie Tull, æt. 21," March 9th, "complains of great pain in the right hip. The region of the joint is rounded, pallid, tense, and tender. The thigh is semiflexed and in the position usually seen in advanced *morbus coxæ*, though by putting the patient to considerable pain it could be brought down into its normal line. The patient has an exhausted appearance. Her skin is flaccid, and, especially about the extremities, is like that of a person suffering from atrophy. She has a very troublesome cough, with much bronchial expectoration; pupils dilated, tongue patchy and whitish, fauces glazed with clammy mucus, pulse 130, feeble, thready; thirst intense, appetite bad, bowels not especially affected; urine high coloured with excess of lithates, sp. gr. 1·020, reaction acid, no albumen. There is some pale muco-purulent vaginal discharge." On examination, however, the pelvic viscera were found healthy. "No tenderness or abnormal dulness at any part of the abdomen." She states that some post-partum hæmorrhage occurred, and that she had offensive discharges for three weeks after delivery. That eight or nine days after delivery the hip began to be painful, and that five days later (the fourteenth day after delivery) she was no longer permitted to suckle the child, in consequence of her increasing debility. "The breasts now are quiescent." Ordered poultices to joint; bark, nitric acid, and opium; brandy.

On the following day, the twenty-eighth after delivery, I found, on handling the limb, that the hip-joint appeared to be quite loose, as though its ligaments were disorganized. General condition much the same as yesterday. P. 120.

29th day.—Rather improved. P. 112. Night sweats profuse.

30th day.—Tongue improving. P. 120.

32nd day.—Tongue moist, but patchy. P. 120.

36th day.—During the past two days there has been greatly increased pain, and as fluctuation could be detected I passed

down towards the back of the trochanter a long bistoury, and gave exit to twelve ounces of pus.

37th day.—Easier, but extremely exhausted. Bed-sores form wherever the least-continued pressure falls. Bowels relaxed; discharge from abscess copious.

42nd day.—Distaste for all food; thirst, as all along, unquenchable.

43rd day.—Had severe rigor at 9 a.m. Urine again examined, and found free from albumen.

44th day.—Rigors at various intervals. Tongue dry. P. 120. Discharge continues.

46th day.—Occasionally the patient, after seeming moribund, revives in a remarkable manner. Mucous membrane of mouth covered with aphthous patches.

On the 48th day, at 2.30 a.m., death took place.

As to treatment, quinine, bottled stout, wine, and brandy, were unsparingly supplied; cod-liver oil, iron, also employed.

Post-mortem examination, thirteen hours after death.—Hip-joint of the right side completely disorganized; the cotyloid cavity and neighbouring osseous structures bared of cartilage and periosteum respectively, and as well the head of the femur. Matter had penetrated *into* the pelvis, through the obturator foramen, where it lay under the fascia, as it had infiltrated into all the adjoining inter-muscular spaces. The uterus and other pelvic organs healthy and unimplicated, as regards the suppuration under the pelvic fascia. Iliac and pelvic veins normal. Liver weighed 3 lb. 12 oz., pale, smooth, and having its cells loaded with oil. Spleen 9¼ oz. (large), friable. Lungs very pale and anæmic, some old adhesions; a cretified deposit, the size of a pea, in the apex of the left one, and in the lower lobe of the right, close to its posterior surface a solidified patch, the size of a bean, with a yellowish, softened centre, like a pyæmic deposit.

Joint disease, as an accident of the puerperal state, is generally accepted to be one of the consequences of puerperal fever, and has, by most surgical writers, been simply alluded to as a result under such circumstances, of pyæmia.

Mr. Coulson, however, in the second edition of his work 'On the Hip-joint,' gives a chapter "On Puerperal Affections of the Joints," and adds the particulars of several cases. In the first two cases death took place on or before the fourth day, in the third case on the sixth day, all with most marked constitutional symptoms. Mr. Coulson's "Case V," p. 204, op. cit., more nearly approaches in character, as regards insidiousness, the case I have just described. The patient was delivered on the 4th of October; she had some flooding for ten days afterwards. On the 23rd of November she first felt pain in the ham; an abscess resulted, which did apparently well. On 6th of December she had rigor and pain in right knee, with stiffness of shoulder. 10th of December she died. Pus was found in the knee-joint, serum only around the shoulders, nothing within the joint itself.

In the case described by myself there was, if the woman's statement be true, some post-partum loss, offensive discharges, extreme debility; but no history of any rigor or chills could be made out. Is the solidified patch at the back of one lung sufficient evidence of pyæmia having been the *cause* of the hip disease, or is there a liability of joint inflammation peculiar to the puerperal state, independent of ordinary purulent infection, characterised by an *absence* of other than local symptoms, of which the case is an example. The following case, for which I am indebted to my friend, Dr. Fenwick, is, perhaps, illustrative of the subject:—

"A young woman, three or four days after confinement, complained of severe pain in the left hip-joint and thigh. The pulse was a little quickened, but there was no great amount of fever. The pelvic viscera were very carefully examined, but no indications of disease could be detected either in them or in the viscera of the abdomen.

"She continued under my care," writes Dr. Fenwick, "about three weeks, and was very weak and feeble. She always lay with the thigh flexed, and constantly complained of pain.

About two months after her confinement an abscess formed at the back of the hip, and was opened. A few weeks after this I again saw her. She was greatly emaciated; the left thigh could not be straightened, movements of the limb caused much pain. There was a sinus at the back of the ilium, but dead bone could not be felt with a probe. The pelvic viscera remained healthy. The patient eventually recovered, and is now able to work as a servant."

That many analogous cases lie scattered over the experience of accoucheurs—*fossilized*, so to speak—I think can be a matter of little doubt; it would be well, if my conjecture be correct, that something more definite than is now to be found in standard surgical works should be made available to the student, by these cases being brought to light. It would be rash in the extreme if, on the strength of a single case, I were to hazard any theory as to the pathology or disease. There is one practical point, however, which may fairly be submitted to the Society, namely—*How soon may the incision into the joint be made? Would not the intense pain, swelling, and high pulse, with symptoms of exhaustion, without waiting for fluctuation and other positive signs of suppuration, constitute sufficient justification of a deep incision even into such a joint as that of the hip?*

Dr. MARTYN could add one case to Mr. Nunn's, of hip-joint disease in relation to childbed—the only one he had met with in one thousand cases of midwifery.

A young woman, otherwise healthy, was attacked on the first or second day after her confinement of her second child with acute pain in the right hip and knee; for some days previously there had been uneasiness of these parts. On careful examination it was evident that the hip-joint was the seat of acute inflammation; the right thigh was soon flexed upon the pelvis and across the opposite limb, the patient lying inclined to her left side, in the usual manner of morbus coxæ. The pain and distress to the patient were very great; all movement was intolerable to her. Some fever attended the first stage of the malady, but he could not regard it at all as of the pyæmic kind; there was no very rapid pulse. The labour had been easy and natural. There had been no great loss of blood; in fact, but for this affection of the hip she did well in all respects.

In the management of this case the affected limb was brought down parallel to the sound limb, and kept fixed upon a double inclined bed for many months—at least seven. At the end of about twelve months she was able to get about with the aid of crutches, and gradually recovered her power of walking; the limb has pretty free mobility at the hip-joint, but is shortened three or four inches; the patient had often felt grating at the hip-joint, and now, three years since she left her couch, any jerk or shock to the limb causes great pain at the hip-joint. There had been no discharge of pus from the joint or abscess discovered during the progress of the malady.

With regard to Mr. Nunn's question as to whether an abscess in connection with these cases should be opened early, he had a strong opinion that they had better be left alone, especially when it is remembered that large collections of pus in these cases may be absorbed; there is abundant evidence to this point. The main thing, it appears to me, is to fix the limb in a straight or semi-flexed position, and leave the rest to nature.

Mr. Nunn, in reply, said that it was curious to observe, in consulting various works, that the surgeons had apparently left the question of puerperal joint disease to the obstetricians, and that the obstetricians had tacitly relinquished it to the surgeons. A very important and highly interesting matter had thus, between the two, not received that elaboration which it required.

June 1st, 1864.

Dr. Oldham, President, in the Chair.

Present—43 Fellows and 7 visitors.

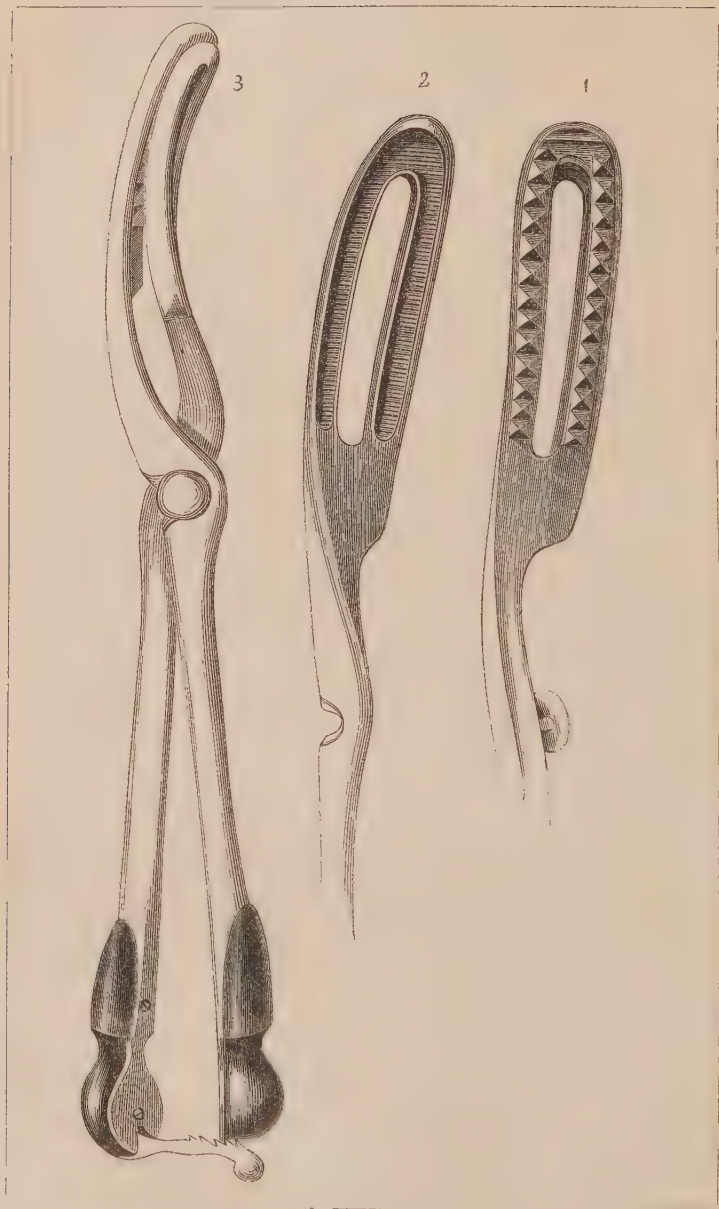
The following gentlemen were elected Fellows of the Society:—Dr. Walter Balls; Dr. A. Wahltuch, Manchester; and Dr. W. B. Woodman, London Hospital.

Dr. Hall Davis exhibited and described a new "Craniotomy Forceps."

The instrument shown was designed to secure in various ways such a firm hold on the cranium that the slipping of the forceps from its grasp might be obviated. Its upper or purchase-part consisted of a male and female blade; the male of a range of teeth forming a back serrated ridge in the shape of a very elongated horse-shoe, while the female blade presented a corresponding groove, answering to and capable of receiving the above ridge of teeth. The blades were further fenestrated to give greater grasping power. The lock is strictly speaking Brünninghausen's, or Naegele's, as it is more generally termed; a secure lock, readily adjusted, easily separated, and so placed that the fulcrum of the leverage is near the purchase.

Thus far, this instrument, which measures fourteen and a half inches long, was constructed for Dr. Davis by Mr. Coxeter in March, 1863, and shown in his lectures at the Middlesex Hospital in that year.

Dr. Davis has within the last month still further improved



DR. HALL DAVIS' CRANIOTOMY FORCEPS.

the security of the purchase by a simple and easy mechanism, which, moreover, saves the operator the double exertion of compressing the handles and making traction at the same time.

It consists of a piece of hard-tempered steel, hinged to the lower end of the handle of the female blade, having three teeth, which act after the manner of a rack, and catch upon a fixed point of steel at the lower end of the handle of the male blade.

In this way, by closing the handles to the required degree, we can fix them at that degree of compression, and occupy ourselves alone with the necessary traction.

Dr. Davis has practically tested this instrument, and found it to answer his object admirably well, and, on comparison, that it is much more easy and simple in use than the employment of a screw for the purpose, as ingeniously suggested, with the same view, by his friend and colleague Dr. Barnes, in December last ('Transactions,' vol. v).

BANDAGE AFTER LABOUR.

Dr. Meadows exhibited a bandage which he recommended in place of the jack towel usually applied after parturition; it was made of stout calico shaped to the abdomen and hips, having one bone for extra support in front; when adjusted, it can be fastened firmly either by buckles or laced like a corset. The advantages contended for are facility of application, comfort to the patient, and greater efficiency. They are made by Salmon, in Wigmore Street, at a cost of five shillings.

Drs. Routh, Oldham, Graily Hewitt, and Meadows, discussed some points connected with bandaging after labour.

ON IMMEDIATE TRANSFUSION.

By J. H. Aveling, M.D.,

SENIOR MEDICAL OFFICER TO THE SHEFFIELD HOSPITAL FOR WOMEN.

As for the last forty years immediate transfusion has almost entirely been lost sight of, it perhaps may not be out of place to premise that by it is meant the transmission, without exposure to air, of blood out of one vessel into another, by the aid of an intercommunicating tube. And as this mode of operating has attached to it a considerable amount of interest, and was for one hundred and sixty years the only one known and practised, it is proposed now briefly to examine the various forms of apparatus which were employed during that period, and to consider generally the advantages and disadvantages of the immediate method. 1865 will be the bicentenary of transfusion, for then two hundred years will have elapsed since the operation was first performed by Dr. Lower, at Oxford. At that distant day, the idea of transfusing blood was not, however, a new one. As far back as the time of Ovid it had been alluded to, and in 1615 a most remarkable foreshadowing of the operation had been given by Libavius, who described it in the following words:—"Let there be a robust youth, healthy, and full of vigorous blood; let there stand by him one exhausted of strength, thin, lean, and scarce drawing breath; let the master of the art have silver tubes fitting into one another; let him open an artery of the robust person, insert one tube and secure it; let him immediately open an artery of the sick man and insert the other tube; then let him fit the two tubes together, and let the blood of the healthy person leap, hot and vigorous, into the sick man, and bring the fountain of life, and drive away all weakness."

It is quite evident that the operation thus described could never have been successfully performed. Both tubes are directed to be inserted into arteries, and, thus placed, the blood would not flow through them. In fact, when Libavius wrote upon the subject, he did so only to ridicule it. He

had not the slightest idea how nearly he was giving an accurate description of an operation which, half a century afterwards, was destined to be found, not only practicable, but popular. During the fifty years now spoken of the circulation of the blood was discovered, and, as a result, operators were supplied with the knowledge necessary for the proper performance of transfusion. By the aid of this new and powerful light they were enabled to take a clearer view of the operation, and its practicability at once became evident.

Dr. Lower transfused blood from one animal to another, for the first time, in the month of February, 1665. He operated thus:—The carotid artery of a dog having been opened, a quill was tied into it, and stopped with a stick. The jugular vein of another dog was then opened, and two quills tied into it, which also were stopped with sticks. The dogs were then fastened together, the sticks removed, and the quill in the artery united to one of the quills in the vein by the help of two or three other quills fitted into each other. The object of the second quill in the vein was to allow the blood of the recipient dog to escape at about the same rate as the fresh supply from the emittent dog was received —this rate being anything but slow, if we may trust to the evidence of Boyle, who, describing the operation, says— "The blood runs through the quills as through an artery, very impetuously." One dog having been bled to death, the surviving one is to have its jugular vein cut across and tied, and the quills removed; and the operator is then directed to "sew up the skin and dismiss him, and the dog will leap from the table and shake himself, and run away as if nothing ailed him."

Boyle suggested an alteration in Lower's apparatus. He says— "Instead of a quill, a small crooked thin pipe of silver or brass, so slender that the one end may enter into a quill, and having at the other that is to enter the vein or artery a small knob, for the better fastening them to it with a thread, will be much fitter than a straight pipe or quill for this operation, for so they are much more easier to be managed."

Sir Edmund King, who, with Dr. Lower, was the first to transfer blood into the human veins, operated in the following way. The carotid artery of a sheep having been opened, he inserted a silver tube, and tied it in. He then opened the vein in the man's arm "with as much ease as in the common way of venesection," and placed in it another silver tube, having in it a blunt stopper, which facilitated its introduction into the vein. When in, it and the skin were held close together by the finger and thumb, the stopper was then withdrawn, the two tubes united by quills inserted between them, and the blood allowed to flow.

Dr. Denis, who was the first to transfuse blood into the human veins in Paris, used for the purpose two slender latten tubes, curved at one end, and furnished with a shoulder, that they might be more readily fastened into the vessels, and at the opposite end fitting into each other. Emmerez, who often assisted Denis, undertook to perform transfusion without tying the tubes in the vessels, and simply by puncture, like that which is used in bloodletting.

Regner de Graaf also used two silver pipes, but, instead of fitting them into one another, or uniting them by means of quills, he inserted between them a piece of an artery to which there was a side branch, the use of which was partly to allow the escape of air and partly to note the constant stream of the outflowing blood.

Heister says — "Where tubes of metal or bone were found inconvenient, flexible ones were adopted, such as part of the carotid artery, or the ureter from an ox, calf, or lamb, or the windpipe of a capon, duck, &c."

It will be observed that the apparatus already described does nothing more than connect one vessel with another. It has no propelling power; the blood is caused to flow through it simply by the force of the circulation. And this force was quite sufficient when the emittent vessel was an artery; but as transfusion had sometimes to be performed from one human being to another, and as the opening of an artery in this case is rather a serious matter, and, moreover, as venous blood was thought more appropriate than

arterial for transfusion, the plan of transmitting blood from *vein to vein* came into general use, and was much insisted upon by Tardy and by Dr. Harwood, Professor of Anatomy in the University of Cambridge, in 1785.

Owing to this change in the mode of operating a serious difficulty arose. It was found that the force of the venous circulation was not sufficiently strong to ensure the continuous passage of the blood through a simple tube, more especially at the end of the operation, when the blood flowed feebly, and, consequently, stagnation and coagulation frequently occurred, interrupting, and sometimes altogether stopping, the operation. To remedy this, various new forms of apparatus were invented.

Graefe, imagining the coagulation of the blood to be due to the cooling process to which it was subjected in passing from one vessel to the other, had an apparatus constructed consisting of a glass cylinder, which could be filled with warm water, through which a glass tube passed for carrying the blood. At either end of this elastic pipes were attached, which had at their free extremities small tubes of silver or gold to enter the vessels.

Purmann, also believing in the fallacy of keeping the blood warm to prevent its coagulating, describes an apparatus consisting of "a tube surrounded with a linen cover, in which warm water is held, to hinder the blood from coagulating which passes through the tube; this must have on each side a fine silver pipe, one of which must be put into the vein of the man, and the other into the vein of the beast."

The idea of preventing coagulation by keeping the blood warm was held as far back as the time of Denis. He advised that the chamber in which transfusion was to be performed should be heated. And if we might judge from the hot-water chambers, &c., which complicate some of the transfusion instruments still sold, we might conclude that the notion is not yet discarded. But practical men soon discovered that the cooling of the blood was not the only cause of coagulation, for, in spite of the surrounding hot water, it still took place.

Stagnation in consequence of the feebleness of the venous circulation was, as has been before stated, looked upon as a frequent source of coagulation, and, having this theory in view, other forms of apparatus were invented.

Boehm, after he had inserted the two tubes into the vessels, united them by a piece of duck's intestine, by stroking the fingers along which the transmission of the blood might be encouraged.

Coluszi used two tubes of glass which he connected in the middle by a small bladder holding about an ounce. In operating he allowed this bag to fill with blood, and, then compressing it, forced the blood forward at any rate he pleased. But, ingenious as these instruments were, they still were very imperfect, and the operation of transfusion languished and was little used for many years.

Blundell, however, at length revived the subject and worked at it with marvellous energy. Instead of overcoming the remaining difficulties of the immediate method, he began to make experiments "with a view of ascertaining whether blood might not be absorbed and propelled by means of a syringe without becoming unfit for the purposes of life;" and, having invented a syringe for this purpose and shown that it could be effectually used, the new or *mediate* mode of transfusing blood was fairly inaugurated. But Blundell's inventive spirit was not long content with the simple syringe. His first modification of it was the addition of a funnel by which the blood might be collected from the arm of the person supplying it and conveyed to the syringe; his next apparatus was that wonderfully complicated piece of machinery which he called an "impeller." This instrument was packed up in a case together with fourteen other requisites, among which were a vice, a gimblet, leather to form valves, and wire to make springs. Well might the inventor say, "The owner of the impeller ought by all means to make himself master of its structure, and to acquire the little skill which may enable him to set it to rights for himself." But Blundell's next instrument was a most interesting and ingenious one. He called it a "gravitator," and drawings with a description of

it may be found in the 'Lancet' for June 13th, 1829. It seems to be almost identical in its construction and mode of action with a transfusion apparatus lately invented by Dr. Hamilton, of Falkirk.

Although Blundell was the author and strenuous upholder of the mediate way of transfusing blood, he did not discard the immediate method without speaking strongly in its favour. He says, "In performing transfusion, there can, I conceive, be no doubt but that the blood ought to be transmitted by tubule merely, when this method is practicable." It is strange, holding this opinion, that he did not endeavour to bring to perfection that mode of operating which, this sentence shows us, he believed to be the best.

Mr. Scott, of Newington Causeway, invented, during the time Blundell was busy with his syringe experiments, an immediate apparatus, which has, perhaps, been scarcely sufficiently appreciated. It is thus described in the 'Lancet' of May 12th, 1826:—"The peculiarity of Mr. Scott's apparatus consists chiefly in its capability of transmitting blood from the vein of one person into that of another without the usual intermedium of a basin or other vessel. The instrument subservient to the operation is Read's syringe, into the extremity of which slides a hollow flexible tube fourteen or fifteen inches long, armed with a silver pipe for entering the vein of the emitter. A similar tube is screwed to the lateral branch of the syringe, and has a silver pipe which is inserted into the vein of the receiver or patient. The two pipes being inserted, and the syringe put in action, the blood is made to pass freely from one person to another, the velocity and the power of the current being regulated by the action of the syringe at the discretion of the operator." In the next number of the 'Lancet,' published on May 17th, a successful case of transfusion is recorded by Jos. Ralph, of Leicester Square, in which Scott's apparatus was used, and the account given of it is most favorable. He says, "However formidable and difficult the operation may have hitherto seemed, it may be performed by this instrument with the greatest ease." By this invention of Scott's the operation of immediate trans-

fusion was greatly advanced. Two important difficulties were overcome by it. Stagnation in the tube was prevented, and the amount of blood transmitted could be measured. In fact, except in the way of simplification, little else seemed to be required to render the apparatus perfect.

Allow me now to submit to your notice a little contrivance for transfusing blood by the immediate method, which, it will at once be seen, is simply an attempt to combine the excellencies and discard the faults of those forms of apparatus which have already been described. It consists of two small silver tubes to enter the vessels, and of an indian-rubber pipe by which they are united, and which has in its centre an elastic receptacle, holding about two drachms. It is without valves, and is simply a continuous pipe with an expanded portion in the middle. By its means the vessels are, as it were, extended from one to the other, and a supplementary heart is added to regulate the circulation. No opportunity has presented itself of trying the apparatus upon the human subject, but some experiments made with it upon the horse have been perfectly satisfactory.[1] In operating with it upon man the following plan is suggested:

While an assistant is preparing the arm of the person who is to supply the blood, lay bare the vein of the patient, and make an opening in it sufficiently large to admit one of the tubes. Then open the emittent vein, if possible, as in blood-letting, and insert the round-pointed tube downwards. If the apparatus be now held slanting upwards, the blood will flow into it and expel the air. Lastly, insert the bevel-pointed tube into the recipient vein, and the blood may then be made to circulate through the pipe at any rate the operator may think proper. This is accomplished in the following manner:—If the pipe on the emittent side and the receptacle be compressed, the blood will be thrown forward into the recipient vein. If, on the contrary, the pipe be compressed on the recipient side, and the receptacle allowed

[1] In making these experiments I have been ably assisted by my friend Mr. B. Cartledge, a member of the Court of Examiners of the Royal College of Veterinary Surgeons.

POSITION OF THE PATIENT AND OF THE PERSON SUPPLYING THE BLOOD.

to expand, the blood will be drawn into it from the emittent vein. This part of the operation should be performed slowly. Each silver tube should be held in its place between the finger and thumb of an assistant. All other points should be managed as in the ordinary operation.

In conclusion, allow me to describe what appear to be the advantages of the immediate method of transfusing blood.

1st. The chances of coagulation are small.

a. Because the blood glides through the pipe and comes in contact only with a thin coating of coagulated blood.[1]

b. Because the blood is removed from the action of the living vessels for only a few seconds.

c. Because the blood is not exposed to the air.

2nd. The apparatus is effective, simple, portable, and inexpensive.

3rd. The operation is safe, easy, uninterrupted, and a close imitation of Nature.

Dr. Cleveland said there appeared to him to be some practical objections to the apparatus exhibited. He did not think that blood could be drawn easily from the vein of the supplier through so narrow a tube; and he felt there would be great risk of injecting air into the vein of the patient, inasmuch as it would be impossible to know with accuracy how the blood was flowing into and from the reservoir or injector. In an operation of this kind, where the exclusion of air was all important, he considered it most essential for the operator not to work, as it were, in the dark.

Dr. Graily Hewitt said the subject brought before the Society by Dr. Aveling was one of great importance, and one, moreover, in which he was individually much interested. In the course of last year he (Dr. Graily Hewitt) had brought the subject of transfusion before the profession in a paper read at the annual meeting of the British Medical Association, held at Bristol, and he had exhibited at that meeting the apparatus for the performance of transfusion, which he now begged to lay before the Obstetrical Society. He would remark that the great desideratum in an apparatus for transfusion adapted for use in obstetric emergencies was a simple, certain, and ready means of conveying the blood. The instrument which he had contrived fulfilled, he

[1] See Prof. Lister's 'Croonian Lecture,' read June 11th, 1863.

believed, these indications; and he had had an opportunity of using this instrument a short time since in the case of a poor woman dying from loss of blood connected with placenta prævia. The instrument acted admirably, and by its means he was enabled to transfuse two successive portions of blood. The operation was unfortunately delayed, as it proved, a little too long, and the patient failed to derive benefit from the operation; but the experience afforded by the case was such as to justify him in expecting the best possible results from its use in similar emergencies. The apparatus devised by Dr. Aveling, which in principle, he believed, resembled one that had been recommended by Dr. Richardson, was, he considered, objectionable for a variety of reasons. The want of transparency prevented the observer ascertaining what was going on in the tube; it was not easy to connect, off-hand, the tube with the vein of the individual supplying the blood; and, further, it would be found very objectionable to bring the individual supplying the blood into close proximity with the individual dying from loss of blood. The person supplying the blood was often, in obstetric practice, the husband of the patient; and, unless under very exceptional circumstances, the nerve and fortitude of the individual in question would be likely so to break down as to interfere with the carrying on of the operation. For these reasons, therefore, he believed that, however ingeniously contrived, the "immediate" method could not become a practical operation. [See description of Dr. Graily Hewitt's apparatus, at page 137.]

Dr. Eastlake, in speaking of the apparatus for *immediate* transfusion just exhibited by Dr. Aveling, in comparison with Dr. Hewitt's, stated that he had once seen the latter employed in a case where he and Dr. Hewitt were in attendance, and could speak highly of its practical nature, and of the facility with which it was used. Dr. Eastlake entirely concurred with Dr. Hewitt, in believing it to be a great *desideratum* that the person about to part with the blood, and who is generally the husband or some near relative, should not be brought to the bedside of the patient, whose alarming appearance at such a moment would inevitably produce the deepest anguish and agitation to the relative. In the case alluded to Dr. Eastlake said that he opened a vein in the husband's arm, and, notwithstanding his being some distance from the bed, the scene was so distressing, and the poor man so much overcome, that it was with the greatest difficulty he was kept from becoming unconscious by the free administration of brandy.

Dr. Braxton Hicks hoped he should be able some day to bring before the Society a plan which he had employed with success in the lower animals, and also in a case of hæmorrhage in a lady. The principle of its action was to prevent fibrillation,

thereby doing away with the greatest difficulty attending the operation.

Dr. AVELING, in reply, would remind the Society that the operation of transfusion had been successfully performed by the simplest means—such as quills; and he differed from Dr. Graily Hewitt in his estimate of the difficulties of the operation.

APPARATUS FOR THE PERFORMANCE OF TRANSFUSION.

By GRAILY HEWITT, M.D.,

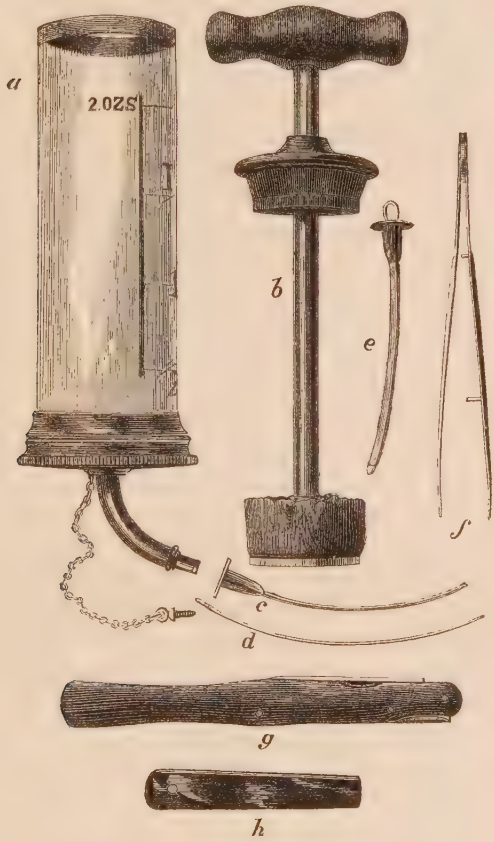
PHYSICIAN TO THE BRITISH LYING-IN HOSPITAL; ASSISTANT-PHYSICIAN-ACCOUCHEUR AND LECTURER ON MIDWIFERY AT ST. MARY'S HOSPITAL.

THE apparatus is constructed to carry out the operation of transfusion in the following manner:

The blood to be transfused is received into a glass syringe, and by means of this thrown into the vein of the patient requiring the blood. The method adopted allows of the almost instantaneous transference of the blood from one individual to another, and the exposure of the blood, which, as is well known, tends to produce rapid coagulation, is reduced to a minimum. This is effected by making the syringe itself the vessel into which the blood is received. For this purpose the piston of the syringe is removed, and the barrel of the syringe is held in an inverted position over the orifice of the vein, in close apposition with the surface of the skin, but not pressed too firmly, otherwise the blood will not flow. The blood then flows into the syringe, and when a sufficient quantity is collected therein the syringe is suddenly removed and the piston inserted, the blood being prevented from escaping by inserting the little plug into the escape-pipe. The syringe is constructed to hold two ounces.

Prior to filling the syringe with blood the arm of the receiving patient must be prepared. For this purpose the arm is to be uncovered, the vein selected which is

largest—usually the median-basilic or the median-cephalic —and a longitudinal incision, one and a half inch long, made through the skin, immediately over the course of



The contents of the "Transfusion Case" are here represented; half the actual size. The syringe (*a*) holds two ounces; *b*, the piston; *c*, canula, and *d*, its plug; *e*, reserve canula; *f*, pair of forceps; *g*, scalpel; *h*, lancet.

the vein. The vein itself is then to be dissected out, and completely bared for nearly one inch of its course. The vein is then to be seized with the forceps, and a slight

incision made in it by means of the scalpel. This incision should be made obliquely, and just enough to admit the canula with its plug. The canula, at the extremity of which the rounded plug projects, is slightly curved. The next step is to introduce this canula, with its plug, into the vein; the plug is then withdrawn, and the escape of a minute quantity of blood shows that the canula is properly inserted. The arm is then to be carefully and steadily held by an assistant, with directions to prevent the escape of the canula from the vein. The operator next procures the supply of blood in the manner previously described, being careful not to proceed to this stage of the operation until everything is perfectly ready for the injection of the blood. Experience has shown that the operation will most frequently break down from want of attention to this rule. The actual injection of the blood is performed as follows:—Taking the syringe with its contents to the bedside as rapidly as possible, the operator removes the little plug from the canula, and adjusts the syringe to the latter. This adjustment can, owing to the construction of the apparatus, be effected instantaneously, and by gently depressing the piston the blood flows into the receiving vein. The quantity thrown in at once should not exceed about one ounce or one ounce and a half, and the injection of this quantity should occupy about one minute. It may be necessary to throw in two or more such quantities, according to circumstances. If more than one syringe-full is required, the second or following supplies must be procured and injected in a manner similar to the first.

The glass syringe, with its adjuncts, admits of being very rapidly and easily cleansed. The "Transfusion Case" made by Messrs. Savigny, of St. James's Street, contains, together with the syringe, two canulas with plugs, a small pair of dissecting-forceps, a sharp-cutting scalpel, and a common lancet. The bulk of the whole is very inconsiderable, and the case, containing, as it does, everything possibly required for the performance of the operation, can be carried in the ordinary "obstetric bag," being thus always at hand in case of emergency.

For the performance of the operation it will be found necessary to have the assistance of two individuals—one to hold the arm of the recipient, the other to manage the arm of the person supplying the blood. The incision into the vein, in order to procure blood, should be a tolerably large one, to ensure a rapid flow of blood into the syringe. It is not necessary, as was formerly supposed, to heat the syringe, or to take steps for maintaining the blood at a high temperature; the syringe should, however, be placed in a basin of clean water slightly warmed, in order to render the motion of the piston easy.

In the accompanying illustration the apparatus for transfusion is depicted half the actual size.

The object kept in view in the construction of this apparatus is the rapid transference of blood from one person to another. Experience has shown that, while the rapidity with which coagulation occurs varies in different persons and at different times, two or three minutes may be always calculated on before coagulation will occur. The various steps of the operation must be carefully considered before undertaking it, in order to allow of the transference being effected within this interval of time. The tendency to coagulate is materially diminished by the method here adopted of receiving the blood, whereby the exposure to air and contact with foreign bodies is reduced to a minimum.

PRACTICAL REMARKS UPON THE TREATMENT OF PLACENTA PRÆVIA, WITH ILLUSTRATIVE CASES.

By Robert Greenhalgh, M.D.,

PHYSICIAN-ACCOUCHEUR TO ST. BARTHOLOMEW'S HOSPITAL, AND LECTURER ON MIDWIFERY AND THE DISEASES OF WOMEN AND CHILDREN AT THE COLLEGE; CONSULTING PHYSICIAN TO THE SAMARITAN HOSPITAL, AND TO THE CITY OF LONDON LYING-IN HOSPITAL, ETC.

"Among all the causes which make labour difficult and dangerous," says Dr. Read, in his exhaustive treatise on 'Placenta Prævia,' "none are so much to be dreaded as placenta prævia."

Denman considers it to be "attended with the greatest danger."

The elder Rigby states "that no circumstance that attends parturition exposes women to so much danger as profuse hæmorrhages from the uterus toward the latter end of pregnancy."

The late Dr. Rigby affirms that "there are few dangers connected with the practice of midwifery which are more deservedly dreaded."

Again, Dr. F. H. Ramsbotham remarks "that placental presentations are always fraught with extreme peril; I look upon them, indeed, as the most dangerous of all cases of hæmorrhage."

And that there is good ground for such statements I may be permitted to remind you that it has been computed, from large and impartially collected statistics, that in cases of placenta prævia one mother out of every four and a quarter is lost, and about two thirds of the children are stillborn.

It has been further shown that this accident occurs about once in 573 cases (Johnson and Sinclair).

There are many causes which may be assigned for this sad loss of life, to which I will briefly allude.

In the first place, hæmorrhages of a slight or severe character are apt to occur, and to be frequently repeated, during the last

six weeks or two months of utero-gestation, thereby undermining the powers of the patient prior to the commencement of labour.

2ndly. Hæmorrhage may come on so suddenly, and at the same time so profusely, at the time of labour, as to place the patient in immediate danger.

3rdly. Hæmorrhage may be so severe or so frequently repeated before a medical attendant can be procured, as to render any attempts at delivery on his arrival almost necessarily fatal, owing to the exhaustion which would thereby be produced.

4thly. Either from a pardonable timidity on the part of the practitioner, or from the want of the necessary means at hand, much valuable time may be lost in seeking the required aid or necessary implements and means for the proper management of the case.

5thly. Although a patient may escape or recover from the immediate effects of the loss of blood, she may gradually sink exhausted, or die suddenly from syncope; moreover, it has been incontestably proved that such loss renders her more prone to puerperal disease, under which she may succumb.

To aid in averting these several grave calamities is the object of the present communication. Had I delayed its publication, I might have presented you with a larger array of facts, and I might, perhaps, have seen reason, after additional experience, to modify my views; but I have been urged to lay before the Fellows of this Society the facts, such as they are, in order that a plan which has hitherto been so satisfactory in its results may be tested by larger experience, by which its value or worthlessness must ultimately be determined. At least, the course recommended is a simple one, attended with little or no difficulty to the practitioner, and the production of but slight discomfort and no risk to the patient.

Moreover, it appears to me more closely in accordance with Nature's workings, in relation to the safety of mother and child, than any other plan which has been hitherto devised.

I shall be as brief as possible in the statement of facts, and avoid all comments upon those disputed points which have been so acrimoniously discussed in connection with this subject; in short, I shall content myself with attempting an exposition of the various thoughts which have suggested themselves to my mind in the order of their occurrence, as far only as regards the treatment of these most important cases.

On the 27th of March, 1842, I met with my first case of placenta prævia, which I will briefly narrate.

Case 1.—*Partial placenta prævia; repeated hæmorrhages previous to and during labour; great exhaustion; turning; death in seven hours.*

B. K—, æt. 31, had reached the end of the eighth month of her sixth pregnancy. For the last five weeks has had occasional slight pains, with losses of blood, which have weakened her very much, and for which were administered acid and strengthening medicines. When taken in labour she had a very great "show," which alarmed her, and induced her to send for the midwife. For seven hours she had slight pains, with frequent losses of fluid and clotted blood, when, becoming very faint, my services were requested. On my arrival she was so prostrate that I immediately administered brandy and egg freely, and sent off for Mr. North, by whose advice, and in whose presence, I turned the child. There was no further loss of blood; but, in spite of nourishment and stimuli, she sank, exhausted, in seven hours from the time of delivery.

Case 2.—*Partial placenta prævia; slight hæmorrhages before, and profuse flooding during and after, labour; turning; recovery.*

During the year 1844 I was requested by Mr. Nelson to visit Mrs. T.—, æt. 30, nine months advanced in her sixth pregnancy. Between three and four weeks prior to labour she had been losing blood every now and then upon any exertion. When pains set in she had a "copious flow," which induced her to send to her attendant, who, upon ascertaining the na-

ture of the case, despatched a messenger for my assistance. On my arrival I found her so blanched, and with such a rapid and feeble pulse, that I at once administered stimuli freely, and, fearing a fatal result, sought the services of Mr. North, who, as she was still losing blood, advised immediate delivery by turning, which was easily effected. The child was a female and born alive. In spite of every precaution, the administration of ergot, &c., severe post-partum hæmorrhage followed, which, for some hours, placed our patient's life in the greatest jeopardy. I saw this patient some years afterwards, when she informed me that she had never recovered from the shock her system sustained; formerly florid, she was now deadly pale; and, from being strong and stout-hearted, she was now feeble and a prey to dyspeptic and nervous symptoms.

Case 3.—*Partial placenta prævia; profuse hæmorrhage; turning; delivery by craniotomy; alarming postpartum hæmorrhage; recovery.*

On the 4th of December, 1846, Mr. J. R. Wells sought my advice in the following case:—Mrs. —, æt. 36, between eight and nine months advanced in her sixth pregnancy, had been seized, after about two and a half hours of slight pains, with flooding, which, from its suddenness and profuseness, had occasioned prolonged syncope. When she had somewhat rallied under the influence of stimuli, pains again came on, and with them some loss of blood, which induced me to proceed to turn the child, which was accomplished with much difficulty, owing to the rigidity of the parts. As the fœtus was dead, and the head more or less fixed in the brim of the pelvis, I performed craniotomy, which enabled me speedily to extract the child. Severe hæmorrhage followed, although every precaution was taken to avert such a calamity. In the course of three or four hours our patient had sufficiently rallied to enable us to leave the house. Her recovery was protracted.

Case 4.—*Placenta prævia; severe hæmorrhage; expulsion*

of placenta, followed by rapid delivery of living child; recovery.

During the afternoon of the 27th of November, 1847, Mr. Hind was hurriedly sent for to Mrs. M—, who had been suddenly seized with a "copious gush" of blood from the vagina at the full period of her fifth pregnancy. Suspecting the nature of the case, that gentleman sent to me without delay. On my arrival I was informed that the patient had speedily rallied from the loss; that three or four strong pains, attended with slight discharge of blood, had effected the expulsion of the placenta, which then lay in the bed. I had not been in the room more than ten minutes when a severe and long pain came on, speedily followed by another, which occasioned the expulsion of a living male child of average dimensions. The uterus contracted firmly, and there was no further hæmorrhage. Both mother and child progressed satisfactorily.

Case 5.—*Partial placenta prævia; repeated hæmorrhages before and during labour; plugging; natural delivery; death.*

During the year 1848 I was requested by a medical friend to visit Mrs. W—, who was said to be dying from a severe flooding before the birth of the child. On arriving at the house I was immediately ushered into the lying-in-chamber, where I found my friend looking very alarmed and in the act of applying cold vinegar cloths to the abdomen and vulva of his patient, who was cold, blanched, nearly pulseless, gasping, and sick. There was a considerable amount of blood about the bed and on the floor of the apartment. As all bleeding had ceased, I called him aside and elicited the following facts:—That the patient was about thirty-eight years of age; had had seven children, the last about two years ago—good labours, satisfactory recoveries; that she had reached nearly the full period of utero-gestation; that about six weeks ago she was first seized with a severe flooding, and that since that period she had from time to time uterine pains, with considerable gushes of blood from the vagina, which had greatly enfeebled her; that about two hours before my arrival labour-pains

had set in, and with each pain there had been a free loss of blood, and that he had not been able to make out the presentation. I ordered the application of cold to be discontinued, and recommended the free administration of brandy and egg, and hot bottles to the feet. When the patient had somewhat recovered from her alarming prostration I made a careful examination, when I found the vagina full of coagula, by the side of and through which I passed my finger to the os uteri, which was dilated to about the size of a crown-piece; within, and projecting therefrom, was a large portion of placenta, partly detached from, partly attached to the posterior and lateral surfaces of the lower segment of the uterus. Fearing to attempt the delivery of the patient while so prostrate, I lost no time in carefully plugging the vagina with a silk handkerchief and three or four pieces of sponge, which I secured by a broad bandage between the limbs, attached to another bandage which had been previously placed tightly round the abdomen. Over the vulva and perinæum I placed a firm pad. I requested brandy and beef juice to be administered frequently and in small quantities, so as not unduly to excite the heart's action; I also gave a drachm of Battley's Solution of Opium.

In about three hours the patient had rallied wonderfully; and, as there were slight evidences of returning pain, I ordered drachm-doses of infused ergot of rye to be given with a tablespoonful of brandy every hour. Shortly after the administration of the second dose the pains became more vigorous, when she expressed a fear that the plug was being forced out, which soon proved to be the case, quickly followed by the expulsion of a living male child, which was very pallid. The placenta was speedily extracted, and with scarcely any loss of blood, the uterus acting well. Her labour from first to last was about eight hours' duration. For some time her condition was very precarious, but she gradually rallied under the influence of brandy, beef juice, and laudanum. Towards the evening, and contrary to our express injunctions that her head should not be raised, even on to a second pillow, the nurse attempted to make her

"comfortable" by removing all her soiled linen, and finally by raising her to put on a clean night-gown, in the act of which she fell back dead without uttering a sigh.

This lamentable case made a great impression upon my mind, and from time to time suggested the following ideas:

What would be the best course to pursue in order to prevent those hæmorrhages, which, so frequently occurring in cases of placenta prævia during the last two months of utero-gestation, undermine the powers and even endanger the life of the patient?

How does nature occasionally effect the safe delivery of mother and child without the interference of art?

To these questions my limited experience did not at that time enable me to give a satisfactory reply.

During the year 1852 I was sent for by one of the midwives of the Percy Lying-in Charity, to the following case.

Case 6.—*Complete placenta prævia; hæmorrhage; natural delivery; recovery.*

A woman, æt. 36, was suffering from complete presentation of the placenta; she had had eight children. Labour came on with a copious gush of blood from the vagina, but was arrested, most effectually, by the rapidity and vigour of the uterine contractions, which jammed the placenta between the head of the fœtus and part to which it was attached; the child, a female, was born alive; the placenta was shortly expelled, and the mother did well. Labour lasted about one hour and a half.

This was to me an extremely instructive case, and one which seemed to demonstrate the following: That, providing, in any given case, the uterine contractions are frequent and expulsive, the head being propelled against the lower segment of the uterus and placenta, and the parts rapidly dilating, under such combined influences the hæmorrhage might be arrested, and the labour terminated safely to mother and child, by the unaided efforts of nature.

Having about this time read Dr. Simpson's able treatise "On the Spontaneous Expulsion and Artificial Extraction of the Placenta before the Child," I resolved when I met with a fitting case, in which it would be dangerous to turn the child in utero, the patient being greatly exhausted from previous loss of blood, to put his method to the test, and I was the more anxious to do so after the successful issue of Case No. 4, in which spontaneous separation and expulsion had been effected by the unaided powers of nature, with safety to mother and child. During the year 1852 I met with the following case.

Case 7.—*Partial placenta prævia; repeated hæmorrhages; rupture of membranes; complete artificial separation of placenta; spontaneous delivery; recovery.*

Mrs. —, æt. 29, had reached the full term of her fourth pregnancy. For three weeks before labour set in she had sustained several losses of blood, which had debilitated her. A large flow of blood accompanied the first pains, and, as they were frequent and severe, and occasioned slight protrusion of the membranes, I lost no time in rupturing them; the hæmorrhage, however, continuing, and my patient being somewhat exhausted, I passed my hand into the vagina, and, with two fingers inserted into the os uteri, I soon succeeded in detaching the placenta from its uterine attachments, the flow of blood still persisting. As the head, however, was rapidly descending, I resolved to trust to the powers of nature, which soon effected the expulsion of a stillborn male child. The mother remained for some time in a precarious state; she rallied after some hours, and eventually made a slow and imperfect recovery.

Case 8.—*Partial placenta prævia; repeated hæmorrhages; complete artificial separation of placenta; turning; death.*

In the summer of 1853 I was summoned to attend Mrs. C—, æt. 32, between eight and nine months advanced in her fifth pregnancy. For five weeks she had been subject to slight gushes of blood from the vagina, which she states were

arrested by acid medicines, cold drinks, and rest in the recumbent posture. Labour commenced with severe pains and a "heavy flooding," which was repeated "again and again," until my arrival, when I found her considerably exhausted. After administering some brandy, I speedily effected the detachment of the entire placenta, but, as blood continued to pour away from the vagina, I introduced my hand into the uterus and effected, by version, the delivery of a stillborn male child. Atogether the labour was about two hours in duration. After the birth of the child there was no further loss of blood, but the patient never rallied, and died exhausted in two hours.

The results of the artificial extraction of the placenta before the child in the two cases just narrated, proving so unsatisfactory, I determined again to return to the old practice of turning. Between the years 1853 and 1859 I met with six cases of partial placenta prævia (Cases 9, 10, 11, 12, 13, 14), out of which I lost one mother and all the children.

Five of the mothers were much reduced by repeated losses of blood before I was consulted; in three the membranes were ruptured with little or no effect in arresting the hæmorrhage; in all version was subsequently had recourse to, in one of which craniotomy was performed, owing to impaction of the head in the brim of the pelvis, the patient dying from exhaustion an hour ofter delivery. In one an elastic air-ball was used as a plug, but the blood oozed so freely from around it, that it was found of no avail.

Case 15.—*Nearly complete placenta prævia; severe hæmorrhage; turning; recovery.*

During the year 1858 I was engaged to attend Mrs. C—, æt. 38, in her eighth confinement. When taken in labour, a month before her time, I was out of town, and my friend Mr. Marshall was sent for. On his arrival he found that, with the accession of pain, so much blood had been suddenly lost, and with such effect upon the patient, that he immediately despatched a messenger for Dr. Ramsbotham, who shortly reached the house, when it was determined that nearly the whole of the placenta was presenting. I was at once tele-

graphed from Brighton, and hurried to my patient, whom I found much exhausted and greatly agitated; all hæmorrhage and pain had ceased. The os uteri was undilatable. Good beef tea, stimuli, and quiet, were recommended, and on the following day I plugged the vagina, placed a bandage tightly round the abdomen, and gave repeated doses of ergot of rye, which were followed by vigorous uterine action. After some hours the plug was withdrawn; no hæmorrhage followed, but, as the os uteri was well dilated, and the external parts capacious, I at once delivered her by turning, in Mr. Marshall's presence, of a large, stillborn, male child. There was no further hæmorrhage. She had a protracted recovery.

All these plans of treatment having proved unsatisfactory in my hands, what was to be done?

It then occurred to me that if I could construct a plug, easy of introduction, that would effectually fill the whole vagina, and press firmly against the os and cervix uteri, so as to favour the formation of coagula in and about the upper part of that canal, while by firm and well-regulated pressure over the uterus I could prevent any internal accumulation of blood, it would be a great step in advance. I then invented the form of plug which I shall presently describe.

Case 16.—*Partial placenta prævia; severe hæmorrhage; spongio-piline plug; induction of artificial premature labour; safe delivery of mother and child.*

Mrs. S—, æt. 34, mother of three children, the last eighteen months ago; labours good, but indifferent recoveries, so weak that she has never been able to suckle her children; was about seven and a half months advanced in her fourth pregnancy. I was informed on my arrival that, about half an hour ago, while lying quiet in bed, she had been seized with a sense of discomfort and fulness about the lower abdomen, followed by a copious "gush" of blood from the vagina, which had occasioned her and those about her considerable alarm. I found her blanched, pulse feeble and very rapid, surface cold; she trembled from head to foot, and expressed a dread that if she had another such loss she should lose her life.

I soothed her as well as I could, and remained in the house some hours, administering frequently and in small quantities, brandy, milk and egg, laudanum, and ether, until she had fairly rallied. I then made a careful examination, which convinced me that the child was alive, the head depending, and the placenta wholly or in part stretched over the os uteri. I requested that she should be kept religiously quiet, that cold beef tea, milk, and brandy, should be given frequently, and that she should not, under any circumstances, raise her head from the pillow, stating that I would not be answerable for the consequences if she disobeyed my instructions. As there was no pain or hæmorrhage, and as she had not completed the full term of pregnancy, I did not deem it necessary to plug the vagina. Before leaving the house I informed her husband of the nature of the case, the probable return of the flooding, and the possible danger of a fatal loss of blood before medical aid could be summoned. His agony of mind at learning my opinion it would be impossible to depict. I shall never forget his words: "Is there nothing that science can suggest in such a case? Oh, bitter thought! that some day I may leave my dear wife well and happy in the midst of her darling children, and return home to find her a corpse, and my poor children motherless." And he continued, "must I suffer this torture of mind for six weeks, and then, perhaps, lose her after all? I cannot endure it. I will submit to any plan you may suggest, but, for God's sake, ease my suspense and save my wife." He was a solicitor, a man of great intelligence and good common sense, therefore I felt confident that any feasible suggestion I might make would be readily acceded to.

About six hours after this painful interview I decided to recommend the artificial induction of premature labour, stating, however, that I had no practical experience of such a plan in similar cases; still I urged in its favour the following advantages:

1st. That he and his wife would thereby be spared a six weeks' suspense.

2nd. That all loss of blood would, I hope, be prevented by the introduction of the spongio-piline tampon.

3rd. That he could be sure of my attendance at the time of accouchement, and that I should be well prepared with appropriate means to meet any and every emergency.

4th. I informed him that, whereas 1 out of every 4¼ mothers, and more than half the children, were lost in cases of placenta prævia, certainly less than 1 mother died in every 53, and at least two thirds of the children were saved, where labour was induced, although, in many cases, the operation had been undertaken where there existed great deformity of the pelvis.

He and his wife readily acceded to my proposal, and it was arranged that I should carry out my suggestions on the following day.

Early in the morning of the 25th of June, 1859, I repaired to the house, and was gladly welcomed. There had been but a very slight sanious discharge since my last visit, apparently due to coagula in the vagina, which I had left undisturbed. Having once more carefully examined the abdomen, and made out the position of the child and the attachment of the placenta to the cervix, I removed, by a syringe and ice-cold water, the contents of the vagina, into which I carefully introduced No. 2 plug, with little difficulty and only slight pain, which I inflated until it occasioned my patient some discomfort. I then adjusted a bandage round the abdomen, under which and over the uterus I placed a large and firm pad. I also attached a silk handkerchief to the bandage in front, which I passed between the legs and fastened behind, which served to fix another pad, which was placed over the perinæum and vulva, so as to prevent the escape of the tampon. Having made these preparations, I commenced giving two-scruple doses of infused ergot, with a scruple of borax, every hour. I administered a stimulating enema of eight ounces of compound decoction of aloës, an ounce of turpentine, and twenty minims of tincture of nux vomica. From time to time brisk frictions were made over the abdomen, and she was fully supplied with hot

milk brandy and nutmeg, and beef tea. After the third dose of ergot pains came on, which, after the fourth dose, increased considerably in frequency and power. She now began to complain of an intolerable desire to pass water, with a feeling that the plug was about to be expelled, consequently I let a little air escape from the tampon, thereby enabling her to pass a small quantity of urine; but as a little blood began to ooze from the vagina, I again inflated it. In about an hour from this time, and between five and six hours after the adoption of these various means, there was so much pressure upon the plug that I ventured to loosen the handkerchief between the legs and remove the pad, when I found the tampon forced upon the perinæum by each succeeding pain.

Fearing that any further delay in letting out the air might impede the expulsion of the child, or possibly lead to rupture of the uterus, I withdrew the plug, and, to my delight, not a wineglassful of blood escaped; and I found the head occupying the upper part of the sacral cavity, the os uteri much dilated, and the membranes tense. Projecting from the posterior segments of the os, a large piece of very firm placenta could be detected. The pains were now frequent and severe, and, in little more than an hour, a living male child was expelled, which, although very pallid, screamed immediately. The placenta was soon extracted, and there was scarcely any blood lost, certainly not so much as after an ordinary labour at term.

On examining the placenta about a sixth of its size looked somewhat smaller, and in a highly congested state; it had lost its spongy texture, and appeared torn here and there.

Unfortunately it was disposed of, or I intended to have made a careful examination of its condition. This lady made an excellent recovery, and was enabled to suckle her baby, which she had not been able to do on any previous occasion. The boy is still living, and is one of the finest fellows I have ever seen.

Case 17.—*Partial placenta prævia; repeated hæmorrhages; turning; convulsions; death of mother and child.*

During the year 1861 Dr. Cooke sent for me to a patient about forty years of age, mother of several children, who was suffering from nearly complete placenta prævia. She had flooded, more or less, between four and five weeks previous to the full period, which she had now reached. At the time of my visit she had lost much blood, was very blanched, and had an extremely feeble pulse. Restoratives were freely given, under which her powers rallied. Pains coming on, and with them a renewal of the hæmorrhage, it was deemed expedient, as the parts were very dilatable, to make an attempt to turn the child and deliver. No sooner, however, did my hand enter the uterus, which was effected with much ease, than she was seized with a violent convulsion. I speedily extracted the child (dead), when the convulsions ceased. In about half an hour some slight oozing began to take place from the vagina, which induced me again to introduce my hand into the uterus to extract the placenta. While doing so another and still more violent convulsion came on, from which she never recovered, and died convulsed in about three quarters of an hour.

I now determined to try the plan recommended by Dr. Barnes, viz., detachment of the placenta from the cervical zone of the uterus.

Case 18.—*Partial placenta prævia; repeated hæmorrhages; artificial partial detachment of the placenta; plugging; spontaneous delivery; recovery.*

During the year 1862 I was requested to visit Mrs. P—, æt. 31, who was between the eighth and ninth month of her third pregnancy. I was informed by her medical attendant that she had flooded, sometimes severely, "now and again," for seven weeks, which had yielded to acetate of lead and opium, acids, ice, and rest; that for the last three days the bleeding had scarcely ceased, and that about a quarter of an hour ago she had experienced several pains of a forcing and bearing-down character, attended with an increased flow of blood,

which made him anxious about his patient, as she was becoming very low. An examination at once revealed the nature of the case, and I determined, as the os uteri was very dilatable, to detach the placenta from the cervical zone of the uterus. Notwithstanding the pains were frequent and vigorous, the hæmorrhage still continued, and, fearing any delay, I thoroughly plugged the vagina, which arrested all further loss, and in about three quarters of an hour from this time a stillborn female child was spontaneously expelled. The mother tardily regained her wonted strength.

Not many months passed when the following case occurred in my own practice.

Case 19.—*Partial placenta prævia; profuse hæmorrhage; artificial partial detachment of the placenta; turning; recovery.*

Mrs. T—, æt. 28, had completed the eighth month of her fourth pregnancy, when, in the act of defecation, a large escape of blood took place from the vagina, which more than half filled an ordinary chamber utensil. Recovering from the shock, she was seized with periodic pains. On my arrival, about an hour and a half after the occurrence, she was complaining of feeling very faint, and of some trickling of blood from the vagina. Some cold milk, brandy and egg, were administered with good effect, after which I ascertained that the placenta occupied nearly the whole circumference of the internal os uteri. At once I fully detached the placenta from the lower segment of the uterus, but, the *bleeding still continuing*, and the parts being very lax, I had recourse to turning without further delay, extracting a stillborn male child of average size; the labour lasted about four hours. The patient made a good recovery.

Case 20.—*Partial placenta prævia; profuse hæmorrhage; spongio-piline plug; natural delivery, with safety to mother and child.*

On the 24th of March, 1862, I was requested by the late Mr. Angus to visit Mrs. V—, who had been seized early in

the morning of that day with pain and very profuse flooding. She was about twenty-two years of age, and had reached the full term of her first pregnancy. Previous to my arrival Mr. Angus had diagnosed the case as one of placenta prævia.

I found the patient in bed, with occasional pains, each pain being attended with an escape of blood from the vagina. I was informed that her system was beginning to suffer from the loss, although it could not be said that she manifested any evidences of prostration. On examination I detected the os uteri firm, and only dilated sufficiently to admit of the introduction of the index finger, which came in contact with a portion of the placenta situated in the lower posterior and lateral segments of the uterine cavity. With Mr. Angus' concurrence I introduced the plug, which I inflated, and recommended that the case should be left to the powers of nature. We visited her again in the course of the afternoon, when I learnt she had had some pains, but there had been no trickling of blood whatever. I saw her again with Mr. Angus in the evening, when she complained that the plug hurt her, and she could not pass water, consequently it was withdrawn. No blood followed of any importance. The os uteri was dilated to about the size of a crown-piece, and the placenta could be easily detected. As she was somewhat exhausted from want of sleep, the plug was again introduced and a drachm of Liquor Opii Sedativus was given, which secured her a fair night's rest. Early in the morning vigorous pains set in, and, as there was some pressure upon the plug, Mr. Angus withdrew it, when he found the os uteri considerably dilated, and the head gradually descending with each pain. He now ruptured the membranes. Between two and three hours sufficed to terminate the labour satisfactorily both to mother and child.

Case 21.—*Partial placenta prævia; hæmorrhage; spontaneous rupture of membrane; natural delivery; recovery.*

I was hurriedly summoned during the year 1862, by Dr. Hensley, to Mrs. —, the wife of a medical man, about thirty-two years of age, mother of six children. She had reached

the full period. I was informed that at the onset of pains she had been seized with a considerable loss of blood, which was renewed from time to time with each pain. Her medical attendant had determined it to be a case of placenta prævia. I found this lady not much affected by the losses, and upon making a vaginal examination the liquor amnii was ascertained to be trickling away, slightly tinged with blood. All flooding having ceased, and the pains recurring with tolerable regularity and power, the case was left to the unaided efforts of nature.

The child was born alive, and our patient made a good recovery.

Case 22.—*Partial placenta prævia; severe hæmorrhage; rupture of membranes; recovery.*

I was requested by Mr. Cousins to see Mrs. P—, between thirty and forty years of age, mother of several children, who had reached the full period of pregnancy, when she was suddenly seized with profuse hæmorrhage, which her medical attendant quickly determined was due to partial placenta prævia. He at once ruptured the membranes. On my arrival all flooding had ceased, pains were recurring from time to time, and I subsequently learnt from Mr. Cousins that she was safely delivered of a stillborn child without any further untoward event.

Case 23.—*Partial placenta prævia; severe hæmorrhage; plugging; natural delivery, with safety to mother.*

During the year 1862 I was requested by a medical man to visit his wife, who had been suddenly seized with pains and profuse hæmorrhage about a fortnight before the expiration of the full term of pregnancy. This lady was about thirty-three years of age; had had four children. Previous to my arrival her husband, who is an extremely intelligent practitioner, had detected a large portion of the placenta placed over the os uteri. As she had lost a considerable amount of blood, and was by no means a robust person, I strongly advised that, instead of turning, the vagina should be well

plugged, and the labour left to nature, the pains recurring from time to time, and the parts being dilatable. A bandage was tightly applied round the abdomen, the vagina well plugged with cotton-wool, over which and the perinæum a pad was placed, secured by a handkerchief between the legs. Having remained some two or three hours in the house, and assured myself of this lady's safety, and more especially that there was no escape of blood, I left her in charge of her husband, promising to return in the course of a few hours. On my arrival, about six hours afterwards, I learnt that shortly after my departure the pains had gradually increased in frequency and severity; that great pressure was made upon the vaginal plug, which induced her husband to withdraw it; that scarcely any hæmorrhage had followed; and that, speedily after its withdrawal, the child was born, which made several ineffectual attempts to breathe. The lady had a fair recovery, and has lately been confined again.

Thus fortified, I ventured, during the session of 1862, to recommend this plan of treatment to my class, and its adoption among the out-patients of St. Bartholomew's Hospital, and I am much pleased in being able to place before you the records of two cases which have been thus treated by my intelligent midwifery assistant, Dr. Mackintosh, during his period of office, from June to December, 1863, which go far to strengthen the value of the plan I have the honour to place before you.

Case 24.—*Partial placenta prævia; repeated hæmorrhages; spongio-piline plug; artificial induction of premature labour, with safety to mother.*

1st Case.—Mrs. M—, æt. 33, married three years, had reached the sixth month of her first pregnancy, when she was seized with pains and severe hæmorrhage, occurring at intervals of a week. At the period of Dr. Mackintosh's visit she was much reduced by repeated losses of blood. On examination the placenta was distinctly felt occupying the anterior half of the orifice of the uterus. The spongio-piline plug was introduced into the vagina and inflated, a

compress and bandage were applied to the uterus externally, Secale Cornut. given in ʒj doses every hour. No further hæmorrhage took place till the plug was removed, when there was a slight amount. The os being now perfectly dilated, the membranes were ruptured, and the child and placenta were rapidly expelled. The mother made a capital recovery; the child gasped once or twice, but did not live longer. "Not to be wondered at," remarks this gentleman, "as it was only a six-months' fœtus."

Case 25.—*Partial placenta prævia; repeated hæmorrhages; spongio-piline plug; natural delivery, and safety to mother and child.*

2nd Case.—"Mrs. S—, æt. 25, married nine months, first pregnancy; much the same train of symptoms, only not so much hæmorrhage. The same treatment was adopted in this case as in the first, and with the most favorable results both to mother and child."

Case 26.—*Partial placenta prævia; severe hæmorrhage; completion of labour by natural efforts; recovery.*

During May, 1863, I was summoned by Dr. Part to visit Mrs. —, twenty-three years of age, who had completed the eighth month of her first pregnancy. A considerable flow of blood had taken place on the accession of pain, which had continued off and on for about two hours before my arrival. I then learnt that for three weeks previously she had had occasional losses of blood, which had somewhat weakened her. By a careful examination I detected a considerable portion of placenta situated anteriorly and within the os uteri, posterior to which the membranes could be felt somewhat tense during a pain. As she was still losing blood, it was determined to rupture the membranes, which was easily effected. I subsequently was informed by Dr. Part that she was safely delivered, without further loss, of a small living male child.

CASE 27.—*Complete placenta prævia; repeated severe hæmorrhages; plugging; death.*

Mrs. N—, æt. 28, between six and seven months advanced in her second pregnancy. About a fortnight ago had a slight "show," which was followed in a day or two by a more decided loss, when a surgeon was sent for, who administered some acid mixture. She went on for some days, losing more or less blood, when she applied to the hospital. At this time she was greatly reduced, and was very blanched. Brandy, beef tea, and acid mixture, were prescribed, and subsequently tincture of Indian hemp was ordered. Again another and more severe hæmorrhage came on, when the spongio-piline plug was introduced, which effectually prevented any further loss. Shortly after this I was requested to see her. I found her perfectly bloodless, and in such an alarming state of prostration that nothing could be done but to support her flickering powers. In spite of nourishment, stimuli, and unwearied attention, and although no more blood was lost, she sank from exhaustion, undelivered, twenty-four hours after my visit. On examination after death the placenta was found attached to the whole circumference of the lower segment of the uterus.

Table I.

No. of case.	Date.	Age.	No. of pregnancy.	Period of gestation—months.	Placenta presentation. Complete.	Placenta presentation. Partial.	Presentation of child.	Hours in labour.	Hæmorrhages. One.	Hæmorrhages. More.	Hæmorrhages. Over what period.	Mode of delivery. Natural.	Mode of delivery. Rupture of membranes.	Mode of delivery. Plug.	Mode of delivery. Turning.	Mode of delivery. Forceps.	Mode of delivery. Craniotomy.	Separation of placenta. Entire.	Separation of placenta. Partial.	Sex of child. Male.	Sex of child. Female.	Results to child. Living.	Results to child. Dead.	Results to mothers. Living.	Results to mothers. Dead.	Period of death after delivery.	Cause of death.
1	1842	31	6	8	—	P	Head	9	—	M	5 weeks	—	—	—	T	—	—	—	—	M	—	—	D	—	D	5 hours.	Exhaustion.
2	1844	30	6	9	—	P	Head	3	—	M	3½ weeks	—	—	—	T	—	—	—	—	—	F	—	D	L	—	—	—
3	1846	36	6	8—9	—	P	Head	4	O	—	—	—	—	—	T 1	—	C 2	—	—	M	—	—	D	L	—	—	—
4	1847	—	5	9	—	—	Head	1	O	—	—	N	—	—	—	—	—	E	—	M	—	L	—	L	—	—	—
5	1848	38	8	8—9	—	P	Head	8	—	M	6 weeks	N 2	—	P 1	—	—	—	—	—	M	—	L	—	—	D	7 hours.	Syncope
6	1852	36	9	8¼	C	—	Head	1½	O	—	—	N	—	—	—	—	—	—	—	—	F	L	—	L	—	—	—
7	1852	29	4	9	—	P	Head	3	—	M	3 weeks	N 3	R 1	—	—	—	—	E 2	—	M	—	—	D	L	—	—	—
8	1853	32	5	8½	—	P	Head	2	—	M	5 weeks	—	—	—	T 2	—	—	E 1	—	M	—	—	D	—	D	2 hours.	Exhaustion.
9	1855	28	4	8½	—	P	Head	3½	—	M	3 weeks	—	R 1	—	T 2	—	C 3	—	—	M	—	—	D	—	D	1 hour.	Exhaustion.
10	1855	37	7	8—9	—	P	Head	2	O	—	—	—	R 1	—	T 2	—	—	—	—	—	F	—	D	L	—	—	—
11	1856	41	13	8	—	P	Head	1½	—	M	3 weeks	—	—	—	T	—	—	—	—	—	F	—	D	L	—	—	—
12	1857	32	5	8	—	P	Head	2	—	M	5 days	—	—	—	T	—	—	—	—	—	F	—	D	L	—	—	—
13	1857	—	several	8	—	P	Head	—	—	M	10 days	—	—	—	T	—	—	—	—	M	—	—	D	L	—	—	—
14	1858	29	5	8—9	—	P	Head	5	—	M	3 & 4 weeks	—	R 1	—	T 2	—	—	—	—	M	—	—	D	L	—	—	—
15	1858	38	8	8¾	C	—	Head	10	—	M	36 hours	—	—	P 1	T 2	—	—	—	—	M	—	—	D	L	—	—	—
16	1859	34	4	7½	—	P	Head	4	O	—	—	N	—	P	—	—	—	—	—	M	—	—	D	L	—	—	—
17	1861	40	several	9	—	P	Head	4	—	M	4 & 5 weeks	—	—	—	T	—	—	—	—	M	—	—	D	—	—	¾ hour.	Convulsions.
18	1862	31	3	8—9	—	P	Head	1½	—	M	7 weeks	N 3	—	P 2	—	—	—	—	P 1	—	F	—	D	L	—	—	—
19	1862	28	4	8	—	P	Head	2	O	—	—	—	—	—	T 2	—	—	—	P 1	M	—	—	D	L	—	—	—
20	1862	22	1	9	—	P	Head	23	O	—	—	N 2	—	P 1	—	—	—	—	—	M	—	L	D	L	—	—	—
21	1862	—	several	9	—	P	Head	4	O	—	—	N	—	—	—	—	—	—	—	—	—	L	—	L	—	—	—
22	1862	—	—	9	—	P	Head	3	O	—	—	—	R	—	—	—	—	—	—	—	—	—	—	L	—	—	—
23	1862	33	5	8½	—	P	Head	9	O	—	—	N 2	—	P 1	—	—	—	—	—	—	—	L	—	L	—	—	—
24	1863	33	1	6	—	P	Head	—	—	M	1 week	N 2	—	P 1	—	—	—	—	—	—	—	—	D	L	—	—	—
25	1863	25	1	9	—	P	Head	—	—	M	—	N 2	—	P 1	—	—	—	—	—	—	—	L	—	L	—	—	—
26	1863	23	1	8	—	P	Head	6	—	M	3 weeks	N	R	—	—	—	—	—	—	—	—	L	—	L	—	—	—
27	1864	28	2	6—7	C	—	Head	—	—	M	2 weeks	—	—	P	—	—	—	—	—	M	—	—	D	—	D	Undelivered	Exhaustion.

TABLE II.

		Total No. of cases—838.	Period of pregnancy.		Presentation of placenta.		Character of labour.		Hæmorrhage.		Condition of patient.		Mode of delivery.					Results to mothers.		Average of deaths.	Results to children.	
			Full period.	Premature.	Complete.	Partial.	Natural.	Unnatural.	Before expulsion of placenta.	After expulsion of placenta.	Favorable.	Unfavorable.	Rupture of membranes.	Plug.	Turning.	Forceps.	Craniotomy.	Recovered.	Died.		Lived.	Stillborn.
Table I.	Spontaneous separation of the placenta. Labour completed by natural efforts .	52	5	30	11	7	14	8	39	1	6	9	—	4	—	—	—	52	—	—	10	26
Table II.	Spontaneous separation of the placenta. Labour completed by artificial means .	26	3	8	—	1	3	16	15	1	6	11	—	—	19	1	4	21	5	1 in $5\frac{1}{5}$	2	16
Table III.	Artificial separation of the placenta. Labour completed by natural efforts .	31	4	13	16	7	20	8	29	3	3	23	—	6	—	—	—	28	2	1 in $5\frac{1}{2}$	3	24
Table IV.	Artificial separation of the placenta. Labour completed by artificial means .	51	10	15	25	6	3	2	46	6	9	31	—	3	39	4	6	40	11	1 in $4\frac{7}{11}$	9	24
Table V.	Partial separation of the placenta. Labour completed by natural efforts . .	123	24	46	17	77	76	10	93	8	27	41	—	8	—	—	—	109	14	1 in $8\frac{13}{14}$	56	55
Table VI.	Partial separation of the placenta. Labour completed by artificial means . .	555	89	184	192	117	102	45	253	—	20	236	—	25	512	10	15	416	139	1 in 4	223	246
	Average of deaths.		1 in $1\frac{5}{7}$	1 in $1\frac{1}{8}$		1 in $1\frac{1}{8}$		1 in $1\frac{1}{8}$		1 in $1\frac{1}{8}$		1 in $1\frac{1}{8}$								1 in $2\frac{1}{55}$		1 in $1\frac{213}{240}$

Table IV.

Results to 315 *Mothers and Children from Placenta Prævia, occurring between the seventh and ninth months of utero-gestation.*

MOTHERS.

257 recovered, 58 died.

59	were delivered at	7th	month	9	died	15·25 per cent.
11	„	7½	„	1	„	9·91 „
90	„	8	„	18	„	20 „
33	„	8½	„	7	„	21·21 „
122	„	9	„	23	„	18·85 „

CHILDREN.

122 were born alive, 193 stillborn.

57	were born at	7th	month	41	stillborn	71·22 per cent.
12	„	7½	„	8	„	66·66 „
91	„	8	„	53	„	58·24 „
44	„	8½	„	27	„	61·36 „
111	„	9	„	64	„	57·65 „

Table V.

Presentations in 148 *cases, with results to the Children.*

51 born alive, 97 stillborn.

	Total.	Alive.	Stillborn.
Head	108	41	67
Head and hand	3	...	3
Head and cord	3	...	3
Head, arm, and cord	1	...	1
Breech	7	3	4
Hip	1	...	1
Feet	13	3	10
Feet and cord	1	...	1
Knee, cord, and breech	1	...	1
Funis	1	...	1
Shoulder	4	3	1
Shoulder and cord	1	...	1
Arm	2	...	2
Arm and cord	1	...	1
Transverse	1	1	...

The following Table shows the age of each patient, the number of the pregnancy, the period of utero-gestation, and the hours in labour. Thus, 1 was 22 years of age, and so on.

Age of Patient	22	23	25	28	29	30	31	32	33	34	36	37	38	40	41
No. of Patients	23	1	1	1	3	2	1	2	2	2	1	2	1	2	1	1

First or subsequent pregnancy; thus, 4 were first pregnancies, and so on.

No. of Pregnancy	1	2	3	4	5	6	7	8	9	13	several
No. of Patients	26	4	1	1	4	5	3	1	2	1	1	3

Period of gestation; thus, 1 was six months advanced and so on.

Period of Gestation	6	6-7	7½	8	8¼	8½	8-9	9
No. of Patients	27	1	1	1	6	2	2	6	8

Duration of labour; thus: 1 lasted one hour and so on.

Hours in Labour	1	1½	2	3	3½	4	5	6	8	9	10	23
No. of Patients	23	1	3	4	3	1	4	1	1	1	2	1	1

Of 26 cases, 23 were partial and 3 complete placental presentations.

In 10 cases hæmorrhage occurred at the commencement of and during labour; in 17 it was frequently repeated, over varying periods; thus, in 1 over one and a half day, and so on.

No. of Days	1½	5	7	10	14	21	24	31	35	42	49
No. of Patients	16	1	1	1	1	1	4	2	1	2	1	1

Natural delivery.—Three patients (Nos. 4, 6, 21) were delivered by the unaided efforts of nature. In 1 (No. 4) the amount of placental attachment could not be ascertained, owing to the placenta being expelled before the child and prior to the arrival of the medical attendant. In case No. 6 it was complete, in No. 21 partial. In neither had there been any hæmorrhage previous to labour. Mothers and children were saved.

Rupture of membranes.—In 6 cases (Nos. 7, 9, 10, 14, 22, 26) the membranes were ruptured; in one (No. 7) the placenta was subsequently removed and the labour left to

nature; in the second (No. 9) turning, and subsequently craniotomy, were had recourse to; in cases No. 10 and 14 turning alone was resorted to; the remaining two cases (No. 22 and 26) being terminated by the natural efforts. Five of the mothers were saved. Four of the children were stillborn; one living; one not noted.

The plug.—In 9 cases (Nos. 5, 15, 16, 18, 20, 23, 24, 25, 27) the vaginal plug was introduced, in 7 cases (Nos. 5, 16, 18, 20, 23, 24, 25) the labour being terminated naturally. In one (No. 15) turning was subsequently performed; in another (No. 18) the placenta was separated from the cervical zone without arresting the hæmorrhage before the use of the plug. In one case the placental presentation was complete, in seven partial.

In six cases there had been frequent hæmorrhages.

Seven of the mothers were saved and two lost, both from hæmorrhage previous to the use of the plug; one undelivered; the other from syncope, five hours after delivery. Of the 9 children, 5 were born alive and 3 stillborn (one was never born). It is worthy of remark that in the cases (Nos. 15, 18, 24) where the children were stillborn, one had to be terminated by turning, another after partial separation of the placenta, and a third was a six-months child. In all the cases in which the plug was introduced and the labour terminated without further interference the children were born alive.

Turning.—Thirteen patients (Nos. 1, 2, 3, 8, 9, 10, 11, 12, 13, 14, 15, 17, 19) were delivered by turning; 2 (Nos. 3, 9) were terminated by craniotomy; 3 (Nos. 9, 10, 14) after rupture of the membranes. In 12 there was partial, in 1 complete, placentia prævia, in which (No. 15) the plug was previously used.

In 10 cases there had been repeated hæmorrhages, in one (No. 8), after entire removal of the placenta before the child.

Four of the mothers were lost, and all the children were stillborn.

Forceps.—Not one was delivered by the forceps.

Craniotomy.—Two (Nos. 3, 9) were delivered by craniotomy, both after turning; in both there was partial placental presentation; in one (No. 9) there had been repeated hæmorrhages; in this case the membranes were ruptured; the mother was lost.

Spontaneous separation of the placenta.—In one case (No. 4) this occurred, the labour being terminated naturally with safety to mother and child.

Artificial separation of the placenta.—In two cases (Nos. 7 and 8) the placenta was wholly separated by art, in one (No. 7) after the rupture of the membranes, which was terminated by nature; in the other (No. 8), by turning. In each there was partial presentation of the placenta, leading to repeated hæmorrhages. One mother was lost, and both the children were stillborn.

Artificial separation of placenta from cervical zone.—In two cases (Nos. 18, 19) this practice was adopted; in one (No. 18) the plug was subsequently introduced, and the case left to nature; in the other (No. 19) the labour was terminated by turning. In both the placenta partially presented; in one (No. 18) there were repeated hæmorrhages. Both the mothers were saved; the children were stillborn.

Period of pregnancy.—Eighteen cases terminated prematurely, eight at the full period.

Presentations.—Strangely in all, the children presented with the head.

Sex of children.—Fourteen were males, six females.

Results to the mothers.—Twenty-one (Nos. 2, 3, 4, 6, 7, 10, 11, 12, 13, 14, 15, 16, 18, 19, 20, 21, 22, 23, 24, 25, 26) were saved, and six (Nos. 1, 5, 8, 9, 17, 27) were lost; four from exhaustion (one undelivered); one in one hour; one in two, and a third in seven hours; one from syncope, in five

hours, and one from convulsions, three quarters of an hour after delivery.

Results to the children.—Nine were born alive, and 16 were stillborn. Of the former, 4 were at the full period, 5 were premature; of the latter, 3 were at the full period, and 13 were premature. In all the cases (13) after turning the children were born dead.

From these facts it is obvious that in those cases in which the uterine contractions were frequent and effective, and the labour speedily terminated by the unaided powers of nature, the results were most satisfactory both to mothers and children.

It is also equally clear that in these cases, where the plug had been efficiently applied, the uterus roused to vigorous action, and the labour subsequently terminated by the natural efforts, the issue both to mothers and children was very satisfactory; thus, out of seven cases, six mothers and five children were saved. And it must be borne in mind, that case No. 5 lost her life owing to the indiscretion of the nurse, and that one of the children was only a six-months child.

Consequently, it must be admitted that this is a striking contrast to the results attained by the other methods of treatment, by which it has been calculated from large statistical data that 1 in $4\frac{1}{4}$ mothers is lost, and considerably more than half the children are stillborn. I am firmly convinced that sooner or later this alarming form of hæmorrhage, when treated in the manner indicated by nature, and advocated in this communication, will be divested of these lamentable ills, which have deprived many a loving husband of his dearest wife, rendered children motherless, and saddened the hearth of many a hitherto happy home.

It may be said that in some of the cases, if turning had been promptly effected, different results would have been obtained; admitted, yet it must be acknowledged, there is a certain class of cases still remaining in which the hæmorrhage has been so sudden and so alarmingly profuse that any attempt

to turn under such circumstances would be almost necessarily fatal to the mother, and certainly so to the child. The dangers of such a course are well illustrated by case No. 17, and the impossibility of in Case 27. Besides, in cases in which turning is, in ordinary cases, apart from placenta prævia, had recourse to, about 1 in every 14 mothers is lost, and rather more than 1 in 3 children is stillborn.

I would not, however, have you imagine for one moment that I am about to base any special plan of treatment in cases of placenta prævia upon the limited number of cases which have come under my notice; on the contrary, I now deem it necessary to lay before you, in a tabular form, large statistical facts, collected by Dr. Read, which appear to have a more immediate reference to the method I am about to advocate. I shall first place before you the general results obtained under the various modes of treatment, and then more especially direct your attention to those cases in which the plug was used, and where, after spontaneous, entire, and partial separation of the placenta, the labours were subsequently terminated by the natural efforts. In so doing I shall follow the order of that author, and retain the numbers of his several cases with a view of facilitating reference.

TABLE 1.—*Spontaneous separation of the placenta; labour completed by natural efforts.*

Of 35 cases ..... { 5 were at full period.
30 were premature.

Of 52 cases, all the mothers recovered.

Of 36 children..... { 10 were born alive.
26 were stillborn.

10 were born alive { 5 were at full period.
5 were premature.

22 stillborn ..... { 3 were at full period.
19 were premature.

TABLE 2.—*Spontaneous separation of the placenta; labour completed by artificial means.*

Of 11 cases ..... { 3 were at full period.
8 were premature.

21 mothers recovered, 5 died.

Of 18 children..... { 2 were born alive.
16 were stillborn.

2 born alive ..... { .....
1 was premature.

5 stillborn ..... { 1 was at full period.
4 were premature.

TABLE 3.—*Artificial separation of the placenta; labour completed by natural efforts.*

Of 18 cases ..... { 4 were at full period.
14 were premature.

27 mothers recovered, 2 died.

Of 27 children..... { 3 were born alive.
24 were stillborn.

2 born alive ..... { 1 was at full period.
1 was premature.

13 stillborn ..... { 2 were at full period.
11 were premature.

TABLE 4.—*Artificial separation of the placenta; labour completed by artificial means.*

Of 26 cases ..... { 10 were at full period.
16 were premature.

39 mothers recovered, 11 died.

Of 35 children..... { 9 were born alive.
26 were stillborn.

4 born alive ..... { 2 were at full period.
2 were premature.

15 stillborn..... { 5 were at full period.
10 were premature.

TABLE 5.—*Partial separation of the placenta; labour completed by natural efforts.*

Of 71 cases ..... { 23 were at full period.
48 were premature.

109 mothers recovered, 14 died.

Of 108 children ... { 54 were born alive.
54 were stillborn.

27 born alive ..... { 17 were at full period.
10 were premature.

37 stillborn ..... { 5 were at full period.
32 were premature.

TABLE 6.—*Partial separation of the placenta; labour completed by artificial means.*

Of 273 cases ..... { 89 were at full period.
184 were premature.

416 mothers recovered, 139 died.

Of 387 children ... { 160 were born alive.
227 were stillborn.

87 born alive..... { 23 were at full period.
64 were premature.

140 stillborn ..... { 44 were at full period.
96 were premature.

Total number of patients, 818.

647 recoveries.
171 deaths.

Total number of children, 611.

238 born alive.
373 stillborn.

Of the living—48 were at the full period.
(131 recorded) 83 were premature.

Of the stillborn—60 were at the full period
(232 recorded) 172 were premature.

Of the living and stillborn { 108 were at full period.
255 were premature.

I may here remark that experience has convinced me that, no matter how severe or how sudden the hæmorrhage in cases of placenta prævia, even to the degree of threatening the life of the patient, the child is frequently born alive, although it may be expelled at any period between the seventh and ninth month; and I am, moreover, strongly impressed with the notion, from cases I have seen, that the fœtus is more likely to be born alive, owing to its smaller size, if it be at some period after seven and a half months and antecedent to the ninth month, more especially if the os uteri be in a condition to permit of its ready transmission. Still one would, *à priori*, imagine that where the hæmorrhage has been very severe, and the child premature, greater risks would be incurred, and the fœtal mortality would be higher, the death of the child being due rather to the mode of delivery than to any other cause.

Table III.

30 *Cases in which the Plug was used, the Labours being terminated by the Natural Efforts.*

Total No. Cases—30.	Age of patient.	No. of pregnancy.	Months pregnant.	Condition of patient at delivery.	State of os uteri.	Presentn. of Placenta.		Presentn. of child.	Hæmorrhage.		Time between separation and delivery.	Results to mothers.	Results to children.	Remarks.	
						Complete.	Partial.		Before separation.	After separation.					
21	22	2	7	"Faintish"	Thick and rigid	C	...	Head and hand	Great	...	1½ hour	L	D	Ergot; plug twice; placenta and plug expelled together.	Table I.
23	...	4	6½	Very weak and faint	Undilated	C	...	Head	3 weeks	...	15 to 20 minutes	L?	L	Plug expelled by pains.	
50	...	...	8½	... ...	To two inches' diameter	C	...	Head	3 weeks	...	5 to 6 minutes	L	...		
51[a]	...	...	...	... ...	Rather rigid	...	...	.....	Very great	...	1½ hour	L	D	Plug and placenta expelled together.	
90	32	9	8½	Very much affected by hæmorrhage	Dilated	C	...	Feet	Profuse	...	¾ hour	L	D	On removing plug, hæmorrhage.	Table III.
91	43	...	...	Low state; feeble labour-pains	Firm; dense	C	...	Head and cord	Violent	...	Shortly	L	D	Placenta detached; the plug forced away.	
93	36	1	6	... ...	.....	...	P	Head	1 month	...	Hours	L	...		
100	38	7	8	Evidently failing	Dilated	...	P	Head	14 days	...	3 hours	D	D	Ergot.	
104	36	7	8	Critical condition; pains strong and frequent	Dilatable	C	...	Head?	10 days	...	10 min.	L	L	"Necessity of assistance."	
106	35	7	8½	Faint; gasping for breath	Open; dilatable	...	P	Head	14 days	...	2 hours	L	D	Ergot; child gasped.	
162	27	2	7	Feeble; pains of little strength	Opening and closing	...	P	Head	1 week	...	.....	D	D		

Table V.

166	34	2	7	Unfavorable	.....	...	...	.....	Sudden & great	Y	3 days	D	D	Plug twice used; gas in uterus.
205	...	...	9	In previous hæmorrhages much exhausted	.....	...	...	.....	6 weeks	...	.....	L	L	No hæmorrhage for 14 days before labour.
206	...	...	...	Reduced by previous bleedings	Soft; dilatable	...	P	Head	7 months	...	3 hours	L	L	Pains strong; membranes ruptured.
207	...	3	9	In previous floodings much affected	Soft; dilatable	C	...	Head	1 month	...	2½ hours	L	L	After head engaged in os, no hæmorrhage.
208	...	3	9	... ...	.....	...	...	Head	2 months	...	.....	L	L	No hæmorrhage at labour.
209	...	9	8	No pains; much exhausted	Dilated slowly	...	P	Head	.....	...	.....	L	D	Membranes punctured; ergot.
210	...	...	...	Great prostration	.....	...	...	Head	.....	...	.....	D	D	Child putrid; adherent placenta; died of irritative fever.
220	26	2	5	Much affected; fainted away	Os relaxed	C	...	Head	.....	...	.....	L	L	Ergot; fœtus ʒxx.
225	32	3	7½	Much reduced	Rigid	...	P	Head	6 weeks	...	.....	L	D	Plug twice; ergot.
229	40	...	7	Seriously exhausted	Rigid at first	C	...	Head	3 weeks	...	3 hours	D	D	Plug of great service; much phlebitis.
246	...	...	...	... ...	.....	...	P	Head	Months	...	3 hours	L	L	Membranes ruptured spontaneously
257	30	3	8	Unimpaired	Dilated naturally	C	...	Head	3 days	...	.....	L	L	
259	...	9	9	In a profound anæmia	Well dilated	C	...	.....	1 month	...	.....	L	D D	"Double milk leg."
262	27	2	9	Strong pains	Dilatable	...	P	Head	.....	Y	9 hours	L	L	Membranes ruptured.
265	...	...	near term	Much exhausted	Flabby and open	...	P	Head	3 weeks	...	.....	L	D	No hæmorrhage at labour.
273	...	...	9	Pulse hardly perceptible; pains gone	Quite lax	...	P	Head	3 weeks	...	.....	L	L	
277[b]	31	3	near term	Alarming state; pains feeble and slow	Dilated very slowly	C	...	Head	20 hours	...	.....	L	...	Ergot; air-pessary, 1855.
277[c]	...	...	...	... ...	Dilated slowly	...	...	Head	4th month	...	.....	L	L	Ergot.

The number of cases in which the plug was used amounts to 30; 4 in Table 1, 6 in Table 3, and 20 in Table 5.

In 8 cases ergot was used.

In 4 the membranes were ruptured; in 1 spontaneously, in 3 artificially.

Of 24 cases, 6 had completed the full term, 2 nearly, 16 had reached periods varying from four to eight and a half months.

Of 24 in which the condition of the patient at the period of labour was noted, 21 appeared to be in a very unsatisfactory state, 2 were "unimpaired" in strength, and 1 had strong pains.

In 23 the state of the os uteri is reported. In 5 it was rigid, in 18 between partially dilated, dilatable, and dilated.

In 23 cases 12 were complete, 11 partial placenta prævia.

In 25 the presentation of the child is noted. In 22 the head, in 1 head and hand, in 1 head and cord, and in 1 the feet, presented.

In 26 the severity and duration of the hæmorrhage is recorded. In 5 it was very considerable, in 21 it lasted over periods from twenty hours to months.

In 16 cases the periods of delivery of the child after the expulsion of the placenta were noted, which varied from five to six minutes to three days.

Of 30 mothers, 24 recovered, and 6 died.

Of 28 children, 12 were born alive, 16 stillborn.

Let us now inquire what are the comparative results to mothers and children from the different modes of treatment in Tables 1, 3, and 5.

Table 1.—Four cases; all the mothers saved; of the children, 1 was born alive at eight and a half months; 2 dead, 1 at seven months, the other not specified; 1 at six and a half months, result not stated.

Table 3.—Six cases; 5 of the mothers recovered, 1 died.

Of the children, 1 was born alive at the eighth month; 4 were stillborn, 2 at the eighth, 2 at eight and a half months; a sixth was born at the sixth month, result not specified.

Table 5.—Twenty cases, 15 mothers recovered; 5 died.

Of the children, 10 were born alive, 10 were stillborn, 2 (twins) at full time; 1 "near term;" 1 at eight months; 1 at seven and a half months; 4 at seven months; 1 not specified; 1 "near term," result not stated.

Having placed before you, somewhat *in extenso*, the results of my own limited experience and the large impartially collected statistics of Dr. Read, in a tabulated form, as far as they have a bearing upon the plan of treatment about to be proposed in cases of placenta prævia, what, we may now ask, are the important practical points to be deduced therefrom?

1. That nature, unaided, every now and then, overcomes this accident with safety, both to mother and child.

2. By what means such a happy result is effected.

3. That although nature alone is equal in many cases to the emergency, yet such a result must be regarded as strictly exceptional, and as by no means establishing a rule for practice, but simply as indicating the course to be followed in the application of art.

We are further taught the following, and perhaps not less important, facts:

1. That placenta prævia, complete or partial, may happen at any age.

2. That it may occur in a first or any subsequent pregnancy. (Read records a case in which it occurred fifteen times in the same patient.)

3. That it may exist at any period of utero-gestation from four months up to the full term.

4. That spontaneous premature labour is the rule, and not the exception, in these cases.

5. That a patient may be from a few minutes to many hours or even days in labour, with this complication.

6. That in proportion as pregnancy has advanced, so is usually the severity of the hæmorrhage.

7. That the patient may have one only or many attacks of flooding, constant or periodic, slight or severe, extending over a few minutes, hours, days, weeks, and even months.

8. That the danger to mother and child is in relation either

to the amount of blood lost, the suddenness of its flow, or the lengthened period over which such loss extends.

9. That notwithstanding the patient may be reduced to an alarming degree by loss of blood, the os uteri and external parts may continue rigid and preclude delivery.

10. That in proportion to the amount of exhaustion, so is the danger to mother and child from any subsequent manual or instrumental interference.

11. That neither rupture of the membranes, the natural or artificial separation of a part or whole of the placenta, nor ergot can be relied upon, singly or conjoined, to arrest the hæmorrhage in these cases.

12. But occasionally so alarming has been the prostration that no attempt could be safely made to effect delivery.

13. That although turning, *per se*, cannot be regarded as a dangerous operation, yet when undertaken in cases where the patient had been much reduced it proved fatal in 131 out of 512, 1 in less than 4 (Read), not to mention the amount of fœtal mortality.

14. That the effect of the plug was to arrest hæmorrhage, to excite labour-pains, and to promote dilatation of the os uteri and external parts.

15. That the ergot given in repeated doses occasioned uterine contractions, and thus favoured the descent of the presenting part and prevented post-partum hæmorrhage.

Having, I trust, clearly placed before you the data from which these conclusions are drawn, and convinced you, I further hope, of their correctness, it now remains for us to consider what are the results to mother and child from the induction of artificial premature labour. From large statistical inquiries it would appear that less than 1 mother in 53 cases lost her life after this procedure; and when we bear in mind that in many of the recorded cases this operation was adopted in some on account of great pelvic distortion, and in others where the patient's condition was most unsatisfactory, the mortality may even be still further reduced, and especially where timely had recourse to, in the cases under discussion. Moreover, two thirds of the children were saved

by this proceeding, although, in many cases, considerable mechanical impediments existed to their passage through the pelvis, which, in cases of placenta prævia, are not likely frequently to be encountered.

It has always appeared to me that, in cases of difficulty or danger, and more especially where there are great differences of opinion upon important points of theory and practice, it is the paramount duty of the practitioner of medicine (I use this term in its largest sense), first, to inquire how and by what means nature endeavours to surmount her difficulties; and, secondly, whether, when succeeding, she overcomes them more successfully than by the interference of art.

Let us inquire how far this principle is applicable to the cases at present under consideration.

In order that I may be clearly understood, let me picture a model case of placenta prævia terminated by the unaided efforts, and then point out to you the plan which appears to me most consonant with nature's workings, and, finally, place before you the several means by which such indications may easily and safely be carried out.

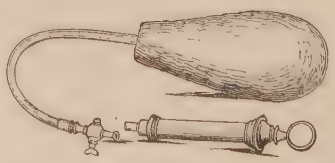
Suppose, then, that a woman of fair average strength be taken in labour, the uterus vigorously and rapidly contracting, the os uteri speedily dilating, accompanied by a moderate loss of blood, the child of average size and in the normal position, whether the placenta be, in part or wholly, over the os uteri, or even if expelled a short time before the birth of the child, the case may, and in all probability will, terminate safely both to the mother and her offspring. It is rare that we meet with such a combination of circumstances; still, they every now and then do occur, and ought to teach us most valuable lessons.

From the foregoing facts, and these indications from nature, I conceive that I am fully justified in recommending the following line of practice:—That in any given case of hæmorrhage due to placenta prævia, occurring after seven and a half months of utero-gestation, when the child is viable, it is expedient, both for the safety of mother and child, to expedite labour—unless the condition of the patient from

exhaustion be such as to preclude this step, and, if so, then as soon as possible after she has recovered from the shock—by every means in our power; that, in so doing, we should arouse the uterus to vigorous action; and while, on the one hand, we take due precaution to arrest all external flow of blood from the vagina, we should, on the other, adopt such means as will effectually prevent any accumulation of blood in the cavity of the uterus, at the same time that we endeavour to effect a gradual dilatation of the parts.

These ends are to be attained by means of a vaginal plug, an elastic abdominal bandage, and ergot of rye, with the occasional additional aid of stimulating enemas, frictions over the abdomen, and every now and then rupture of the membranes; turning only being had recourse to in cases of presentations of the upper extremities; the forceps where, from inefficient action of the uterus or slight mechanical impediments, arrest takes place in the passage of the head through the pelvis; and craniotomy in more serious cases of disparagement in size between the presenting part and pelvis.

The plug; its construction and use. — Although a silk handkerchief, pieces of sponge, cotton wool, and inflated india-rubber balls, have been used to plug the vagina, experience has convinced me that they cannot be depended upon to arrest the hæmorrhage. I have, therefore, much pleasure in introducing to your notice a plug which is easy of introduction, comfortable to the patient, and most efficacious in its results.

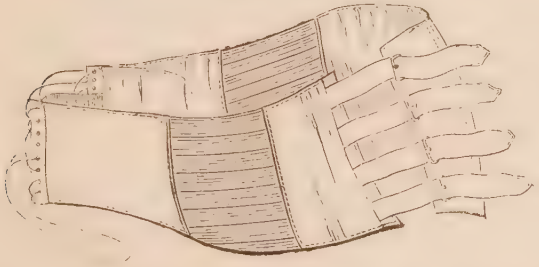


It consists of an oblong india-rubber ball, larger at its upper than lower extremity, which terminates in a tube, closed by a stop-cock. In its construction, having been in-

flated, it is covered by spongio-piline, the impermeable surface being in contact with the ball. When collapsed, it is fully introduced into the vagina, and subsequently distended with air by means of a syringe, until it thoroughly fills that canal. A small piece of grease may be smeared on its upper part, so as to facilitate its introduction. It should never be allowed to remain in the vagina more than twenty-four hours, and, when withdrawn, that canal should be freely syringed out with a lotion of Condy's fluid, so as to remove all acrid and offensive secretions. The plug must then be thoroughly washed and soaked in a similar fluid, previous to its reapplication, if required, or, what is better, a fresh one may be used. It should be retained in its place by a pad placed over the vulva, and a silk handkerchief between the legs, secured to the bandage before and behind. I always keep three sizes for the vagina, of various dimensions.

The plug arrests all hæmorrhage from the vagina; it acts as a local irritant, occasioning labour-pains, and, by dilating the vagina, greatly facilitates the passage of the child. It may be retained in the vagina until there are evidences of more or less pressure upon it, when either a little air may be permited to escape, or it may be extracted or left to be expelled by the natural efforts, care being taken that it is not acting as a mechanical impediment to the passage of the child.

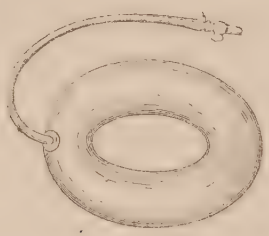
The bandage, its construction and use.—Although a



jack-towel, shawl, or the ordinary abdominal bandage, answers

tolerably well, still I find the bandage constructed at my suggestion, by Mr. Huxley, far more easy of adjustment, cooler, and more comfortable to the patient. I submit this bandage to your inspection, which you will perceive is so made as to fit any person, whether stout or thin. It should be applied so as to make very firm pressure over the uterus, and thus prevent the distension of that viscus by blood. It should be tightened from time to time, so as to favour uterine contraction. It is prevented from riding up by the silk handkerchief placed between the limbs.

Air-pad.— In event of further pressure being needed, especially after the birth of the child, the flat circular pad,



with a hole in the centre, may be placed under the bandage, and then filled either with air or ice-water to the requisite degree.

Ergot of rye.—When the plug and bandage are properly adjusted, repeated doses of infused ergot with tincture of nux vomica may be given, so as to excite or increase uterine action. I have found it serviceable to give a dose just before or immediately after the birth of the fœtus, and in those who are much enfeebled I usually add about a table-spoonful of brandy to one or more doses.

Rupture of the membranes.—Every now and then, especially when the labour is premature, the membranes will be found very tough, when it may be desirable, in order to expedite labour-pains and allow of more efficient contraction

of the uterus, to rupture them. A notched finger-nail, or guarded stilette, may be used for this purpose.

Stimulating enemas, frictions over the abdomen, or galvanism, are valuable aids if the pains are feeble or of infrequent occurrence. The best form of enema is a compound of decoction of aloes, tincture of nux vomica and spirits of turpentine, in gruel.

I may add that the patient should be kept quiet, in the recumbent posture, comfortably warm, and supported by light articles of nutriment, and stimulants if required. The state of the bladder and bowels should be carefully attended to. Bleeding should never be had recourse to unless the state of the general system demand its use, and then with extreme caution.

Transfusion may be found serviceable where there is great and alarming prostration from a sudden or copious loss of blood. In such cases warmth to the feet and legs may be found necessary, and not, as I have more than once seen, the use of cold water and even ice, which in such a state of system has, I fear, frequently extinguished the feeble spark of life.

In conclusion, I trust I may be pardoned for drawing the attention of the Fellows of the Society to two most important points in the diagnosis and treatment of these cases:

1st. The vital importance of early ascertaining the cause of the hæmorrhage, especially in the latter periods of pregnancy; and, 2ndly, when determined to be due to placenta prævia, the extreme folly, nay, culpability, of trusting to acids, acetate of lead, and opium, ice, rest, &c., over days, and even weeks and months, as was done in many of the cases narrated in this paper, to which, in more than one instance, a fatal issue was mainly attributable.

[The discussion on Dr. Greenhalgh's paper was postponed till the next meeting. (See report of meeting for July, p. 188.)]

Wednesday, July 6th, 1864.

Dr. Oldham, President, in the Chair.

Present—45 Fellows, and 16 visitors.

The following gentlemen were elected Fellows of the Society:—Dr. E. Williams, of Wrexham, and Dr. W. G. Houghton, of Mount Street.

Mr. Harper exhibited an Ovarian (?) Tumour removed that day by Mr. Baker Brown. The nature of the tumour being a matter of doubt, the specimen was referred to Dr. Greenhalgh and Dr. Braxton Hicks, in conjunction with Mr. Harper, for special examination.

REPORT BY DR. GREENHALGH AND DR. J. BRAXTON HICKS, ON THE TUMOUR EXHIBITED BY MR. HARPER, AND REMOVED BY MR. BAKER BROWN.

External aspect.—The tumour is firm; very lobulated and somewhat kidney-shaped, the right lobe constituting about one third, the left two thirds of the whole mass. In its long axis it measures nearly eight inches. The transverse circumference of the right lobe is about ten inches, that of the left about the same. The investing membrane is every-

where closely adherent, from which it is separable with difficulty.

Right lobe; anterior aspect.—The right lobe is very much congested, and has at its extremity a large cyst-like cavity, of which the walls are thin, collapsed, and feel gritty.

On its posterior aspect, it is intensely congested and very irregular; almost in the centre bulges a cyst-like cavity of about the size of a chestnut, of which the walls appear thin, filled with fluid, and feel gritty.

Left lobe; anterior aspect.—The left lobe is paler than the right and contains a large cavity, the walls of which are thin and collapsed.

Its posterior aspect is more uniform than that of the right; somewhat nodular and less congested, except in one part towards its upper surface, where it presents the appearance of varicose veins.

On the division of the tumour in its long axis the right lobe cuts like what has been called sarcomatous tissue; the left being much softer, recedes before the knife, whilst the other was more or less cartilaginous.

The great mass of the tumour is made up of solid pinkish tissue, the left lobe possessing delicate bands of lighter tissue radiating from near its centre.

The right lobe appears intensely congested, its upper wall being extremely thick, and towards the centre, near its external margin, consists of numerous cavities, the largest of which is about the size of a walnut, and extending somewhat into the left lobe.

The left lobe is very irregular, somewhat nodular and slightly elevated above the line of the incision; it is much paler, translucent, and looks like fatty tissue. The cavities appear to be separated from each other by firm membranous bands. Their interior is lined by a translucent, highly congested, and glistening tissue, without any epithelium.

Microscopic examination.—On scraping the recently cut surface of the right lobe and examining the fluid micro-

scopically (400 linear, Powell and Lealand), innumerable cells about the size of blood-globules are detected, floating in a translucent medium, and here and there numberless very fine fibrillæ, interlacing in every direction, and having a granular appearance.

On scraping the recently cut surface of the left lobe, there are seen innumerable transparent cells of various forms, spindle-shaped, caudate, ovate, and round; some nucleated, others granular, oil-globules, ill defined fibrillæ, numerous crystals of triple phosphate and wavy fibrous tissue. On compressing a portion of the left lobe the fluid is found to consist of cells of various forms, some nucleated, others granular, for the most part round, with here and there an appearance of well-defined fibrillæ.

On opening the cyst on the posterior aspect of the right lobe and examining the fluid, there came into view innumerable cholesterine plates, oil-globules and amorphous granular matter.

The gritty matter situated on the walls of the cyst-like cavities is amorphous, and dissolves readily, with effervescence on the addition of nitric acid.

The radiating bands proved to be connective tissue, or a variety of it. The pink sarcomatous portion was composed of two kinds:—First, the matrix consisted of wavy and concentric tissue; and secondly, interspersed thickly amongst the first a number of tubular cavities lined with tesselated epithelium, the walls being somewhat flattened and wavy. The epithelium was found capable of being shed, forming a cast of the tubular cavity. It was uncertain whether these cavities could be considered true tubes; but a careful examination led one to the idea that they were. The fibrillæ and round cells found on scraping were derived from the above tissues. We consider, from the general microscopical examinations of the above tumour, that it was a specimen of that form of disease recently designated Adenoma of the Ovary.

FIBROUS TUMOUR OF THE CERVIX UTERI.

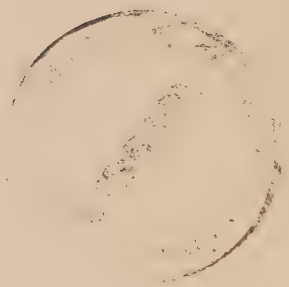
By Gustavus C. P. Murray, M.D.,
OBSTETRIC-PHYSICIAN TO THE GREAT NORTHERN HOSPITAL; PHYSICIAN TO THE BRITISH LYING-IN HOSPITAL; AND PHYSICIAN FOR DISEASES OF WOMEN AND CHILDREN AT ST. GEORGE'S AND ST. JAMES'S DISPENSARY.

A. H—, æt. 47, came under my care at the Great Northern Hospital in April last. She was blanched and emaciated to a degree. Three years ago she had an attack of scarlet fever, followed by renal dropsy and severe bronchitis which lasted nine months. Two years after this she first noticed pain and uneasiness at the womb and experienced losses of blood, which came away in gushes and with great pain; she considered the quantity lost to have been about twelve ounces. This bleeding took place every three weeks, and she also menstruated profusely and regularly every month. She had been an inmate of two other London Hospitals, and had been informed (so she told me) that nothing could be done for her permanent relief.

On external examination I found a large solid mass immediately above the pubes, which gave her pain on being pressed. An examination *per vaginam* disclosed the condition represented in fig. 1 of the annexed plate. Taking the view that the case was one of fibrous polypus of the uterus, growing from a broad base attached to the posterior wall of the uterus, I contemplated its removal when she had sufficiently recovered strength to undergo the operation. I therefore ordered tonics and astringents with full diet and perfect rest, a treatment under which she made satisfactory improvement. At the end of ten days I introduced a sponge tent which, however, caused such distress and irritation that she herself removed it during the night. I then tried to pass a wire ligature by means of an instrument similar to that used by Dr. Braxton Hicks for the removal

½ size.

W. West lith.



of uterine growths. This, however, occasioned such intense pain that she fainted, and I was obliged to desist. Four days after this severe flooding came on accompanied by violent vomiting lasting five days and leaving her terribly exhausted. From this time till the 6th June she gradually got stronger, and was able to leave her bed and sit out in the garden, no further hæmorrhage or sickness having taken place.

I now resolved again to attempt the operation, and with more hope of success, for the os uteri had undergone a tolerable amount of dilatation. On the day appointed, however, hæmorrhage and sickness set in, with general prostration. The bleeding was controlled by plugging, ice, &c., but the sickness continued up to the time of her death which took place on the 15th June.

Autopsy.—Tubercle was found in both lungs. The kidneys were large and soft, and in the right there was a small abscess. The uterus and tumour appeared as represented in fig. 1. On a section being made (fig. 2) the uterus from the internal os was perfectly normal and healthy, the growth being entirely developed in and confined to the posterior wall of the cervix uteri. The internal os could be distinctly felt, and sharply separated the sound from the diseased tissue. There was a passage by the side of the tumour into the cavity of the uterus.

Remarks.—The chief point of interest in this case is the situation of the tumour. Dr. Churchill states, on the authority of Mr. S. Lee, who had examined seventy-four preparations in the London Museums, that the cervix uteri is the rarest seat of such tumours. The operation of enucleation might have been performed, had it been possible to ascertain, during the lifetime of the patient, the exact position of the tumour, and how easily separable it was from its *nidus*.

Dr. Marion Sims, who was present, in reply to a question, stated that he had practised in certain cases incision of the os uteri

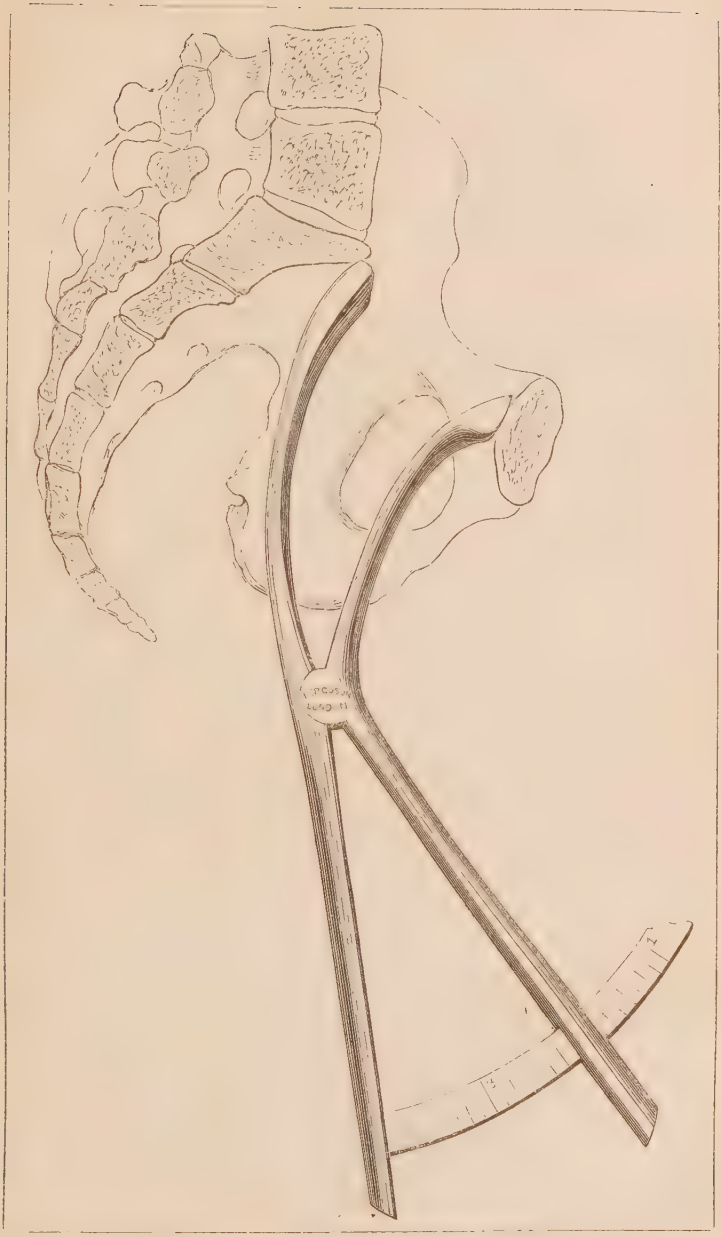
for the purpose of restraining the hæmorrhage often present in cases of fibroid tumour of the uterus. His results had been satisfactory; but he had not practised it sufficiently often to be in a position to speak decisively as to its absolute value. He disclaimed originality as to the operation itself.

DESCRIPTION OF PLATE.

A. Anterior lip of os uteri.
B. Posterior lip.
C. Fundus uteri.
D. Section of tumour.
E. Section of vagina.

Dr. Snow Beck exhibited a uterus removed from the body of a woman who died on the ninth day after a natural labour, and who presented all the symptoms of a severe form of puerperal fever. The peritoneum was found inflamed after death, and about two pints of turbid fluid existed in the cavity of the abdomen. After a minute and careful examination of the organ, the sinuses, the pelvic veins, the lymphatics, as well as every other tissue, were found perfectly healthy, and the internal cavity everywhere covered by a soft membrane containing the usual microscopic elements of the mucous membrane. A decided negative was thus given to many of the supposed causes of puerperal fever. But it was shown that the sinuses and pelvic veins permitted air to flow along their cavities, and that a ready means thus existed for the purulent infection of the general system. This open state of the sinuses was further traced to an imperfect contraction of the uterus after the birth of the child, which thus allowed fluid to pass along these canals.

Dr. Greenhalgh exhibited a Pelvimeter made by Mr. Ferguson during the year 1859, which so closely resembled the instrument lately described as a "New Pelvimeter," the invention of Drs. Earle and Murphy, that he felt it due to his colleague, Dr. Harris, to state that this instrument was devised by and manufactured for him nearly five years ago.



ON PLACENTA PRÆVIA.

By Robert Greenhalgh, M.D., &c.

The discussion on this paper, postponed from the last meeting (see p. 180), was now resumed.

Dr. Barnes observed that the subject of placenta prævia was one that had always engaged the interest of obstetric practitioners, and always admitted of useful discussion. Agreeing generally in the proposition that it was desirable to bring on labour in cases of flooding due to placenta prævia—a practice, he believed, generally adopted by men of experience in this town—he was unable to assent to much of the reasoning of Dr. Greenhalgh, or to approve of the instrument he recommended, or the mode of action he adopted. The mode in which Dr. Greenhalgh had dealt with statistics was especially open to criticism. For example, he started with the assumption that the mortality in placenta prævia cases was 1 in 4¼; and then, took as another proposition, that the mortality, in cases of labour prematurely induced, is 1 in 53. Upon these data, both in themselves fallacious, he arrived at the extraordinary conclusion that we may, by always bringing on labour in placenta prævia, substitute the mortality observed in labours artificially induced under all sorts of circumstances, for the presumed heavy mortality of placenta prævia. Dr. Barnes contended that the postulates were untrue; and it was obvious that the conclusion was perfectly illogical. The assumed mortality of 1 in 4¼, appeared to be drawn from Dr. Read's tables. These tables, collected from various sources, classifying cases of the most discordant character under the same heads, and eliminating—as is the fatal condition of statistical tables—all the facts and details which can serve for critical and clinical comparison, were utterly untrustworthy for the purpose. He denied that the proportion of 1 in 4¼ was at all a fair representation of the mortality in skilful practice. He had made an abstract of his own cases. He found 59 cases which had come under his own observation since the publication of his 'Lettsomian Lectures on Placenta Prævia;' to these he added 4 cases communicated to him as being treated by his method; 6 which occurred in the Maternity of the London Hospital; 2 treated on his principle, for which he thanked Dr. Greenhalgh; and 12 referred to by Dr. Hicks in this discussion, making a total of 83 cases. The deaths

were 6, or 1 in 14. But even this would give no fair idea of the mortality in a large number of cases coming under treatment early, and conducted on the best principles. Dr. Greenhalgh claimed 10 cases, treated successively, without a death; and he excluded one death on the ground that he was called too late. Now, if he (Dr. Barnes) were to perform a similar statistical operation he should also exclude, on equally good grounds, every one of his 6 deaths, and thus obtain a series of 77 cases without a death—a result far surpassing all Dr. Greenhalgh's experience. Two of Dr. Barnes' fatal cases were moribund when seen; two died of pyæmia, the treatment having been forced delivery, that is in direct contravention of his principles; and in two the hæmorrhage had been so profuse as to destroy the hope of recovery. But he found in his table a succession of 26 cases without a death, to place against Dr. Greenhalgh's succession of 10 cases. Then as to the other postulate: the mortality in premature labour. Dr. Greenhalgh considered as of no consequence the fact that premature labour was commonly induced under selected circumstances, so that it became a labour without complications. Thus, in a labour induced at seven months on account of pelvic contraction, the pelvic contraction was of little moment. This operation was performed for the purpose of eliminating this danger. How could cases of this kind be compared with labours induced on account of flooding from placenta prævia? Did the placenta prævia go for nothing? There was no common ground whatever for comparing things so dissimilar. He now came to the question of the children. Dr. Greenhalgh had been fortunate in the small number of cases he had seen. He had saved 8 children out of 10. He (Dr. Barnes) ventured to say that in a larger experience this proportion would not be maintained. The children were subjected to many perils; cross-birth; funis-presentations; immaturity (all common in placenta prævia); and many children died of asphyxia in utero; a large proportion were born putrid. Dr. Simpson, indeed, looked upon the child's life as so precarious that he advocated a plan of treatment in which the child was totally disregarded. His (Dr. Barnes') plan was calculated to give the child the best possible chance. But he found the mortality was 1 in 63. Now, the very mode advocated by Dr. Greenhalgh of inducing labour in all cases must often be destructive of the child, for flooding often occurred in the sixth and seventh months before the child was viable. And it must be remembered that all hæmorrhages during gestation are not due to placenta prævia. Again, in a large proportion of cases, hæmorrhage does not break out until the end of gestation. These are the most dangerous cases. You cannot induce premature labour here, but you may accelerate it by Dr. Barnes' method. But, if it be agreed to bring on labour, is Dr. Greenhalgh's the

best method? He thought not. Dr. Greenhalgh's differed nothing in principle from the ordinary plug long in use, or Braun's colporynter. It was a *vaginal* plug, simply. It had no direct action upon the cervix uteri, which was the part that called for dilatation to expedite delivery. It acted simply by exciting contraction. Now, the effect of hæmorrhage in placenta prævia was frequently to paralyse the uterus. It could not be excited to contract. This is the reason why artificial delivery was so constantly called for. In these cases—the most urgent—Dr. Greenhalgh's plug, like all other plugs, would fail. It was only, in fact, a means of temporising adapted to the less severe cases. He (Dr. Barnes) was much surprised to hear that Dr. Greenhalgh neglected the valuable means of rupturing the membranes, a proceeding long recognised by all authorities as most effective. He (Dr. Barnes) could confidently say that, in a large proportion of cases this proceeding was all-sufficient, and it was a necessary part of every rational system of treatment. It enabled the uterus to contract. It ought never to be neglected; and if, in combination with this, the uterus were detached from the cervical zone, so as to free the cervix, if the cervix were thus artificially expanded by his *cervical* dilators, and the bimanual method of turning resorted to where necessary, he was justified by large experience in affirming that a greater measure of success would be obtained than by any special method. He wished to state that the first case, to attract his attention, of the use of the *intra-uterine* dilator to expand the uterus was published by Mr. Jardine Murray, of Brighton. There was, in fact, no *one* method to be exclusively followed. Cases differed in nature. So the gross results of different methods could not be compared by taking aggregates or averages. There must be a rational comparison, case for case, in all their details.

Dr. Hall Davis remarked that he had little faith in statistics of placenta prævia representing a mortality of one in three or four from that complication, knowing that former statistics to that effect had included cases originally published, not to show the average mortality, but as selected instances, for the most part hopeless when first brought under medical observation, and intended to prove the fatal tendency of this complication of pregnancy if not timely seen to. He would also observe that we are not left without authority, laid down in lectures and works of reputation, to convince us of the dangers of delay in placenta prævia, and guide us to efficient treatment. He might refer, for example, to the lectures of the late Dr. D. D. Davis at University College from 1828 to 1841, and to his esteemed System of Obstetric Medicine, which taught no temporising treatment, but, on the contrary, the necessity of early and active interference, while at the same time pointing out the hazards of a forced delivery through

a rigid os uteri. As to his own experience, he might state that in the Royal Maternity Charity alone he had had, from 1842 to 1862, as physician of the western district, twenty-four cases of placenta prævia. In that number twenty-two mothers were saved, and the two deaths would have been averted had the injunctions given been observed. His treatment had varied with the case. Thus in *partial* placenta prævia he had found the simple discharge of the waters usually sufficient. When the flooding has not been thus arrested, and delivery has been impracticable by reason of the small size of the uterine orifice, he has plugged the vagina impactedly with sponge, or with a sufficient quantity of other suitable material at hand. He has then waited in security for the first opportunity of acting if necessary. In many cases, on withdrawing the plug the head was found descending, and the birth was quickly completed without further aid. In cases of *entire* placenta prævia, when the os uteri would not admit of delivery, he also resorted to the plug, and of similar materials as before, believing such a plug, from its solidity, when efficiently applied, to be far superior to any elastic dilator. After from two to six hours he was generally enabled to remove the plug and deliver by turning. In this operation he preferred to pass his fingers in by the side of the placenta, where it might already be detached, to perforating its centre, as some have recommended, as this latter mode necessitates a more considerable injury of the placental vessels and further hæmorrhage. In the operation of turning, it had been his usual practice to fix the uterus by the right hand applied externally on the abdomen while turning with his left hand. To Dr. Hicks, however, ('Obstet. Trans.' vol. v.) were we indebted for a definitely combined mode of *external* and *internal version* by acting on the opposite poles of the child, the breech above being depressed by the external hand, while at the same time the presenting head is pressed upwards and to its own side. Then the feet are lowered to the os uteri and one or both brought through; the risk, so especially great in flooding, of passing the hand into the cavity of the uterus being in this way avoided. In conclusion, he might say that, while he differed from the author on the points to which he had referred, he fully concurred with him, as all judicious practitioners must do, that to delay efficient interference in this complication is most hazardous.

Dr. J. Braxton Hicks quite agreed with Dr. Greenhalgh as to the necessity of inducing labour in placenta prævia as soon as arrangements could be made, which he believed to be the plan adopted by all who saw much midwifery in this city; it was the practice he had always adopted. With regard to the statistics quoted from Dr. Read's work, he entirely agreed with Dr. Barnes as to their want of value. All large groups of statistics were utterly useless as a guide of any particular practice. It was abso-

lutely essential that the details of the cases should be known. In the tables presented to the Society it was impossible to say what were the surroundings of the patients; whether, in fact, they had died from the operation, from the hæmorrhage, or from the subsequent calamities to which it was known cases of placenta prævia were exposed. How, therefore, could we tell the value of any particular plan of treatment without this information? He considered that when it was said the death-rate was 1 in $4\frac{1}{4}$, there must be some mistake as regards present practice. In the Guy's Hospital Charity it was for nine years as 1 in $7\frac{1}{2}$. He also was obliged to differ from the assertion that the life of the child was not influenced by placenta prævia. That it was so he had no doubt; for in half of the cases where he had seen it made out clearly, the child was known to be dead before any operation was attempted. He hoped the author would have alluded to the plan which he (Dr. Hicks) had recommended in his recent paper on "Combined Version," because he felt sure that it was a very useful one, and not difficult for any one who would take the trouble to learn it. He had known at least nineteen cases, many of them very severe, in which it had been used, with only one death, and that arising from extreme hæmorrhage before seen, and which could not be put down to version. In all his cases there had been immediate cessation of bleeding as soon as the breech was in the os, and he had found that almost in every case labour-pains expelled the child within two or three hours from the commencement of the operation. This point it was important to know in order that we might make our arrangements accordingly. The child was a most efficient plug, and it could be brought down as soon as the os would admit a finger or two. With regard to the small size of the os preventing turning in the above-mentioned mode, he could say it must occur but seldom; when it did so the detachment of placenta round by one finger generally liberated it considerably, enough, at least, to introduce two fingers; if not, the elastic bags could be used with much advantage. We must judge of treatment by its practical application: our hands we have always with us, whereas if called to a case at a distance from home, or in great hurry, it would be impossible sometimes to obtain the plug now shown. The effect of version upon the life of the child he could not compute. Doubtless cephalic was the best presentation; but he had not found in his cases any great mortality. The important point was not to hurry the case after the breech was in the os. The child was generally destroyed by drawing it down before the os uteri was open sufficiently. When the breech was in the os, the case in almost every instance might be left to nature, adopting the rule as in breech cases.

Dr. Graily Hewitt considered the principle enunciated in the paper now read, of the necessity of interference in cases of placenta

prævia, to be one of great value. This principle had never been sufficiently insisted on, and although admitted by men of experience, it had not been laid down as a principle in the obstetric text-books. He might mention that two years ago a gentleman in practice in Yorkshire had, in conversation with him, alluded to this very subject, having lost a patient from a suddenly recurring hæmorrhage, due to placenta prævia. The gentleman in question had hesitated, on the occurrence of the first hæmorrhage, to induce premature labour, not finding such practice sanctioned by the text-books, and the patient, living at some distance, had perished when the hæmorrhage recurred two or three weeks later, before assistance could reach her. Doubtless there were cases of this kind occurring from time to time, and which would have been saved by interference. He considered, therefore, that the expression of the opinion of the Society on this subject would have a most beneficial influence, and that patients known to have placenta prævia would not be left liable to perish at any moment from hæmorrhage. With reference to the particular plan of treatment advocated by Dr. Greenhalgh, which was a modification of the "plugging" system, he had some remarks to make. It was to be recollected that in cases of placenta prævia we have two lives to consider—that of the mother and that of the child. What is best for the one is not always the best—nay, it is frequently the worst—for the other. The safety of the child lay in speedy delivery; the safety of the mother in preventing hæmorrhage. Plugging the vagina, artificial or partial separation of the placenta, were measures calculated to stop hæmorrhage; but such treatment, unless accompanied with speedy delivery, was prejudicial to the child, whose vitality was necessarily destroyed by separation of the placenta to any considerable extent, with or without concurrent external loss of blood. On referring to Dr. Greenhalgh's statistics, it would be seen that although the mortality to the mother was, on his system of treatment, low, yet that the per-centage of still-births was high, and the plan in question was, therefore, open to this serious objection. He (Dr. Hewitt) was quite aware that it was impossible to legislate equally well for all cases, the circumstances of each case being, to a great extent, peculiar; but any generally accepted system of treatment must have in view the preservation of the lives of both mother and child. Rapid natural delivery best fulfilled all the indications, and this should be the object sought to be attained in the treatment of these dangerous cases. In a certain number of instances rapid natural delivery was not possible, and under these circumstances the operation of turning offered the best alternative. The extraction of the child should not be performed too soon after the version, unless the bleeding still continued; for until the os was tolerably dilated, the neck of the child was likely to be so tightly caught by the os as to prevent extrac-

tion. When the fœtal heart was beating very slowly, rapid extraction of course afforded the only chance of preserving its life. In conclusion, he considered the Society under obligation to Dr. Greenhalgh for his very practical and able paper.

Dr. Beatty (of Dublin), in reply to an invitation from the President to address the Society on the subject, said that he addressed the Society under very serious difficulty; for not having had the advantage of hearing the paper now under discussion read at the former meeting, he did not well understand its bearings; but as well as he could collect from the speakers who had preceded him, he inferred that there were two points particularly dwelt upon by the author. The first was the *time* at which we should interfere in cases of placenta prævia; and the second, the *kind* of assistance most proper to be given. It appeared to him (Dr. Beatty) that the author of the paper recommends delivery as soon as possible after the case was fully made out. In this respect there was not much difference between his and the practice very usual in Dublin. We wish to finish the case as soon as possible; but it must be recollected that in many cases speedy delivery was impossible, for occurring as the hæmorrhage most usually does for the first time in the eighth month, or even earlier, when the os uteri was little disposed to relax, it not unfrequently happened that the os uteri was so rigid that delivery could not be attempted. We must then temporise, and by means of position, plug, cold, &c., endeavour to gain time, and save the patient from loss of blood as much as possible. He had spoken now of cases in which there was complete covering of the os uteri by the placenta; but in cases of partial covering, where we could feel any portion of the transparent membranes, the practice was to rupture them at once, and discharge the liquor amnii. When this could be accomplished, we feel pretty easy about the case. The head of the child comes down, and, by pressure on the placenta, prevents any further loss of blood. If the uterus was not disposed to act vigorously, its action was quickened by the ergot of rye. He always depended upon the infusion of the powder made on the spot. It was a medicine that required great care for its safe preservation. He never went out without a drachm of the powder in his pocket-case. It was put up in metallic paper, so as to prevent the absorption of the oil by ordinary paper. It should not be kept more than two months in the case. If not used before then it should be replaced by another drachm. When used it was infused in four ounces of boiling water, and half of it, powder and all, given at once, and the other half in a quarter of an hour. When treated in this way the medicine had never failed him. If the case was one of complete covering of the os uteri, we watch the earliest moment at which the os uteri was dilatable, and then proceed to deliver the patient by turning

the child. From these few hurried observations, it appeared that the practice in Dublin does not much differ from that laid down by the speakers who had preceded him (Dr. Beatty) in this debate.

Dr. Woodman narrated four cases of placenta prævia. In the first the placenta was expelled naturally at the end of six months. All hæmorrhage ceased *before* it was expelled from the vagina, *i. e.*, as soon as it was detached from the uterus. The mother did well. There was undoubted history of syphilis in this case. The next was a transverse presentation with placenta prævia, in which Dr. Barnes turned by Dr. Braxton Hicks' method, after first detaching the placenta as his papers recommend. Here, too, all hæmorrhage ceased as soon as the cervical zone was cleared. The mother did well. Dr. Woodman next mentioned a case in which the patient was so *drunk* that he could not venture to turn in the undilated state of the os uteri; but, by adopting Dr. Barnes' plan, he was enabled to defer further proceedings till she became more sober. The other case was one where simple turning had been used on a previous occasion for placenta prævia, and to move hæmorrhage, and protracted recovery. By Dr. Barnes' method he was able to leave her for two hours (during which he was forced to attend another case), and she made a rapid recovery.

Dr. Gervis remarked that the observations of Dr. Beatty relative to the frequent necessity of "temporising" in cases of hæmorrhage from placenta prævia, where there existed a rigid condition of the os and cervix, illustrated the main point at issue between Dr. Greenhalgh and Dr. Barnes. Dr. Greenhalgh, in such cases, advised the use of the vaginal plug, an abdominal bandage with which to maintain pressure on the uterus externally, and the administration of ergot; while Dr. Barnes maintained that his cervical dilators by themselves efficiently superseded the use of the plug, the bandage and the ergot, inasmuch as while they were dilating the os and cervix, they simultaneously prevented hæmorrhage and excited uterine action. In this estimate of their utility Dr. Gervis entirely concurred. Instead of temporising in any manner, or trusting for the accession of labour to the use of ergot, by these bags you obtained full control of the case from beginning to end; and after adequate dilatation of the os you could either separate the placenta from the orificial zone, rupture the membranes, and then, if that sufficed to check the hæmorrhage, leave the case to nature, or by the bimanual method of version complete it at will. It was not, of course, meant that the dilators were always needed; but their particular value appeared in those cases where but for their use mere temporary measures had to be adopted until the os had sufficiently dilated to permit of operative procedure, and so possibly lead to a delay that might prove fatal.

Dr. Oldham also agreed that it was important to take steps at

once in any case of placenta prævia to accomplish delivery—a plan, he thought, admitted by most practitioners in London, and one upon which he had always acted. However, to effect this object, he believed that nothing was more easy or satisfactory than to turn by the plan recommended by Dr. Braxton Hicks, and to bring down the child into the os. He (Dr. Oldham) had only the night before a case where its application was most satisfactory. He considered the plug, which had been recommended for many years, might be used where the cervix was very rigid, and preventing the introduction of the finger; but its chief advantage was as a provocative of labour, and he doubted if it would be equal to stop hæmorrhage.

Dr. Greenhalgh stated, in reply, that he was very pleased to learn from the several speakers that in these cases they had, one and all, adopted the plan of early delivery advocated in his paper, and mostly with satisfactory results to the mothers, which he maintained was not the course recommended in the standard treatises on midwifery or pursued by practitioners in general. He believed that the great success to the children in his cases was mainly due to not separating either a part or the whole of the placenta from the uterus, to retaining the membranes intact until dilatation of the parts had been effected by the pains and plug, and by avoiding version in cases of head presentation, which entailed more or less risk upon mother and child. He was quite convinced that with these precautions a premature child, whose head was small and easily compressible, stood as good, if not a better, chance of being born alive than a child at term. In allusion to the plug, he stated that some years ago, as mentioned in his paper, he had used an inflated india-rubber bag, but had found it ineffectual in stopping the flow of blood from the vagina, which he had never failed to control, no matter how severe, with the spongio-piline plug. He considered the effects of the plug to be as follows:—1st, to prevent the escape of blood from the vagina; 2ndly, to favour its coagulation in the upper part of that canal; 3dly, to excite uterine action; and 4thly, to dilate the passages. The author approved and adopted the practice of rupturing the membranes in slight cases of partial placental presentation, and of turning in certain malpositions of the child; but he said that he had not alluded to this class of cases in his paper. Dr. Barnes having stated that the statistics of Dr. Read were not trustworthy, and that the author of the paper had estimated the mortality to the mothers too high, Dr. Greenhalgh urged in confirmation the results of the practice of the Dublin Lying-in Hospital, and of his own early experience in cases of placenta prævia. In conclusion, he trusted that after the expression of opinion of so many eminent accoucheurs, there could be no doubt whatever as to the propriety of early delivery in these cases, upon which the ultimate safety of the mother mainly depends.

October 5th, 1864.

Dr. Oldham, President, in the Chair.

Present—43 Fellows and 6 Visitors.

The following gentlemen were elected Fellows: J. M. Bright, M.D., Forest Hill, Sydenham; J. S. Gaunt, Esq., M.R.C.S., Alvechurch, Worcestershire; W. C. Hoffmeister, M.D., Cowes, Isle of Wight; J. H. Salter, Esq., M.R.C.S., Dane's Inn, St. Clements.

CASE OF CÆSAREAN SECTION.

Taken from the Posthumous Papers of the late T. E. Bryant, Esq.

(Communicated by T. Bryant, Esq.)

Frances M—, æt. 38, servant, admitted into Lambeth Workhouse, August, 1837. Her health has been delicate from childhood, so much so as at times to have compelled her to leave her situations, and to depend on her relations for support. She was unmarried. Soon after her admission into the workhouse, observing (when visiting the preparatory lying-in wards) her diminished figure I instituted an examination of the bony structures, more particularly the pelvis, with reference to the forthcoming proof of parturition. The sacrum was found to be very much projecting towards the pubis, diminishing most materially the conjugate or antero-posterior measurement; so much was

this the case as to render it very difficult to make out the exact condition of the os uteri and cervix. Having this evidence of malformed pelvis, and, to a degree likely to interfere with her approaching delivery, I began to reflect seriously on the best means of proceeding. I was told she was in her ninth month of pregnancy, therefore I did not feel that any advantage would be gained by bringing on premature labour; it was therefore advised that the bowels should be strictly attended to, and the period of labour should be permitted to occur when the uterus was in a state to commence its propulsive action. She was ordered to take occasionally a dose of castor oil, as the bowels were disposed to constipation. She complained of occasional shortness of breath, especially when lying down in bed, being often obliged to sit up or walk about; and she also had considerable pain and difficulty in passing her urine.

On Saturday, the 26th August, 1857, she began to suffer with premonitory labour-pains, accompanied by a mucous discharge from the vagina, slightly tinged with blood; the pains abated somewhat during the following day, Sunday, but in the evening pain increased again both in frequency and power; and, on examination per vaginam, the os uteri was found to be a little dilated, but the uterus was too high to enable us to ascertain the presenting part of the fœtus. She remained in this state during the whole of Sunday night, not complaining very much.

On Monday, the 28th, the os uteri was found much dilated, and the membranes protruding in a form more elongated than is usual in vertex presentations; the head could now be felt above the brim of the pelvis, and situated very anteriorly, resting on the pubes; at half-past eight the membranes gave way during an examination. The os uteri was well dilated, and both the bladder and rectum had been quite emptied of their contents. The sacrum was found to be unusually projecting towards the pubes, and the ossa pubis seemed also to approach in a convex form the projecting part of the sacrum, diminishing to a frightful degree the conjugate diameter of the brim, leaving, by the

best examination myself and others are able to institute, a space not beyond two inches. The stature of this woman was very short, four feet seven inches, and bearing all the characters of her having in early life been affected with rachitis. The legs were short, the thighs curved outwards, and to the tibia considerably bowed. The pains were not strong, nor did the head appear at all to descend, or likely to accommodate itself to the narrow bony aperture of the brim. The uterus reached much above the umbilicus, and projected most remarkably over the pubes. The power of the woman appeared defective; and when I saw her, about ten in the evening, the circulation was becoming hurried, the tongue dry, and general restlessness prevailing. It was no difficult matter to determine the impossibility of a living child passing through this woman's pelvis; but a question of vast importance now presented itself, Was it practicable, with safety to the mother, to remove this child by mutilation? Examination, conducted with the greatest care by myself, my friends Young, Dendy, and Doubleday, gave the most convincing evidence that such a proceeding would not be judicious, that the prospect of success in saving the parent was very far distant; that in one so feeble, in one so ill-formed, the time occupied, and the mechanical injury which must necessarily be inflicted would, in all probability, destroy life. With these feelings it became my duty to suggest the propriety of performing the Cæsarean section, and on this subject we reflected most maturely, all deciding on its propriety as the best possible means of saving this poor afflicted creature. It now became my imperative duty to communicate, in the plainest manner, the result of our deliberation to the poor patient herself. I represented the exact circumstances to her, making her perfectly understand the situation in which she was placed; in the presence of all she gave her consent in the plainest language: "Do what you think best."

It was now about two o'clock on Tuesday morning, August 29th, when we made the necessary arrangements. The bed on which she was placed was high, but before we

removed her from the bed on which she had been lying, I thought it prudent to pass a catheter for the purpose of satisfying myself that the bladder was empty; it was, however, not quite clear that we succeeded in passing it into the bladder.

The pressure of the head of the child on the pubes seemed to us an unconquerable difficulty. This, at the moment, seemed to offer an objection to the operation—the fear of distended bladder—still the appearance of the abdomen did not give us an impression that such was the case. I, therefore, overcame that objection, and only felt it right to bear this in my mind, and exercise the greatest caution. She was now removed to the bed prepared for her, and laid on the back with the shoulders low, and the legs hanging over the lower edge of the bed. I commenced my incision with a large scalpel, about two inches below the umbilicus, and continued it downwards to the extent of about six inches. The bleeding was very inconsiderable until I had divided the uterus, when a sudden gush took place, and it became evident that the placenta was cut, perhaps an inch or two. This, of course, was perfectly accidental; it was altogether impossible for us to determine to what part of the uterus this structure was attached previously to the operation. After dividing the membranes the right arm of the child was first seen, and the head, as we had concluded, was downwards, towards the pelvis. I found it impossible to remove the child readily by pulling at the arm; the head, as it were, seemed fixed, and in attempting to get at the feet it was necessary to enlarge the opening a little upwards, when I succeeded very readily, and removed the child, which gratified us all by crying lustily. The cord was instantly tied by Mr. Doubleday, and the child taken care of by him, who handed it to the nurse as well as we could wish to see it. The placenta was now instantly removed, and at this time a fearful flow of blood took place, apparently from the muscular structure of the uterus, so much so as to excite in the mind of all some alarm for her immediate safety. The colon bulged a little,

also a convolution of the small intestines; it was, however, readily kept back by the pressure of Mr. Young's hand. We sought the vessel that appeared to throw out this blood, but could not succeed in detecting it; a large dossil of lint was therefore instantly placed on the part, and pressure firmly applied for about ten minutes, when it ceased. This must have been from the great sinuses of the uterus, and may perhaps be regarded in the light of lochial discharge; it seemed to make but little impression on the state of the circulation. During the operation the pulse continued very good, and the countenance was not more expressive of alarm. The uterus contracted very rapidly, as much so as in ordinary labour. The external wound was now brought together by means of five sutures, a thick compress of lint placed over it, which was confined by adhesive straps, and over the whole a wide linen roller was tightly applied round the abdomen. Some milk with ammonia was given to her, and in about an hour ninety minims of the Liq. Opii Sedativus administered.

Soon after the operation she vomited, during which act bloody fluid escaped from the wound. It was about half-past three when I left the ward. She appeared then not certainly in a hopeless state. Mr. Osborne, my valued assistant, remained with her, watching her with care and anxiety, administering support and consolation. Soon after the opiate was given it was rejected by vomiting, and about half-past five her feet began to grow cold, and the pulse increased in frequency and diminished in power. The Spirit. Ammon. Aromat., with milk, which had been given occasionally since the operation, was now administered more freely, and the feet were wrapped in warm flannels. They gradually recovered their temperature, and then with the rest of the body became warmer than natural, both to the feelings of the patient and myself. The sickness continued unabated, the abdomen became very tense and painful, especially about the lower part; the patient complaining much, and earnestly requesting the removal of the bandage. She became very excited, and it was with difficulty that she could be per-

suaded to be quiet. On seeing her again, between eight and nine in the morning of the same day, I attempted to release her by dividing the abdominal bandage with a pair of scissors. This gave but slight relief, and she still continued to complain of the tense and painful state of the belly. Good beef-tea was ordered to be taken frequently. Soon after this hour she had a short but quiet sleep. About twelve o'clock Mr. Young visited her with me, and we found it expedient to pass a catheter, and succeeded in drawing off a very little urine. In the evening we saw her again, and removed the whole of the abdominal bandage, but without giving any relief to the tense state of the abdomen. On raising the lower end of the lint covering the wound a slight oozing took place, having the colour and appearance of lochial discharge. Some soft gruel was now thrown into the bowels by means of a syringe, with a small quantity of Spirit. Terebinth., which was not retained, and the catheter again passed. Two grains of calomel, with one of opium, were ordered to be taken every second hour, with small doses of mag. sulph. and carbonate of magnesia, and some well-made coffee allowed as a common drink likely to quiet the irritability of the stomach. It was all rejected.

On the following morning, Wednesday, about half-past seven, I learnt she had passed a miserable night. The pulse was now very quick and weak, occasionally intermitting. The extremities were cold, and the face and forehead bedewed with a clammy sweat. She complained of extreme thirst; the sickness was distressing, and the belly still very tense; with pain at the pit of the stomach, and fluttering action of the heart. In this state she continued pretty much until half-past nine, when she quietly expired.

Examination on the following morning, Thursday, in the presence of Messrs. Young, Dendy, Doubleday, Osborne, and Murray.—By measurement the height of this woman was exactly four feet seven inches. The thighs were bowed, and also the tibiæ. The abdomen was very tense. The length of the external wound exactly four and a half

inches on the left side of the linea alba. The wound looked perfectly healthy. On cutting into the abdomen on the right side of the wound the ileum and colon were observed very much distended with air, a convolution of ileum firmly agglutinated by adhesive matter to the left side of the incision, very nearly closing the abdominal cavity. The interior surface of the uterus was very red and injected. The peritoneum covering it being highly inflamed. The uterus very much contracted, and the wound three and a quarter inches long, gaping, not closed so much as we expected; the commencement of the incision just apparent towards the fundus, and extending downwards towards the bladder, within one inch of that organ. The bladder was perfectly collapsed and containing no urine.

The measurement of the pelvis as follows:

From pubes to sacrum, $2\frac{1}{4}$ inches.
Depth of pubes, $1\frac{3}{8}$ inch.
From ileum and to ileum, $4\frac{1}{2}$ inches.

The conjugate diameter is very small, and taking half an inch for the soft parts, leaves only one inch and three quarters.

I could not procure the pelvis; the uterus and bladder are in my possession.

Sept. 1st to 21st.—The child is doing well and has been vaccinated by Mr. Osborne.

22nd.—The child was observed to be poorly, and the back (the lower part of it) was swollen, and had a swelling as if effusion of adhesive matter had taken place into the cellular structure.

On the 23rd it had spread somewhat up the back, but the infant did not seem importantly ill.

24th.—Much the same.

25th.—About five in the morning it died.

Dr. GREENHALGH said he was deeply interested in the Cæsarean operation, of which he had had some experience, having performed it four times; having been present in three cases where other practitioners had operated; and having recently, through the kindness of Dr. Winckel, of Gummersbach, examined three women who had been the subjects of this proceeding. He expressed a conviction that in difficult cases of craniotomy, which

were necessarily fatal to the children and too often to the mothers, the lives of most of the former would be spared, and the latter would stand equally as good a chance, by the timely performance of the Cæsarean section; in proof of which he detailed the case of a poor woman upon whom he had operated, who was reduced to such an extreme degree of debility by mollities ossium that those present considered it impossible that she could survive the operation; notwithstanding, she lived for three weeks afterwards, and then died from rupture of the transverse colon, owing to the distortion occasioning occlusion of the rectum. The child was born alive, and continued to live. Dr. Greenhalgh strongly urged the early performance of the operation, before the membranes were ruptured or the mother exhausted. He considered that the incisions should be made in the linea alba, and as nearly as possible through the centre of the body, and not through the neck, of the uterus, in which, although he admitted there were fewer large vessels, yet there was far less contractile power, and consequently a greater liability to hæmorrhage, as happened in one case which he witnessed. He recommended that the abdominal and uterine wounds should be held together by the fingers of an assistant placed within the extremities of the incisions; that, immediately after the extraction of the fœtus and secundines, the fingers should be passed from within through the neck of the uterus into the vagina, so as to secure a free exit for the discharges; that the uterus should be firmly grasped by the hand, so as to obtain its firm contraction; and when all fear of hæmorrhage had passed, that the abdominal wound be brought together by the interrupted suture, and still further secured by broad strips of adhesive plaster. As a rule he administered no medicine, but met each symptom by its appropriate remedy. He mentioned one extraordinary case where the patient was up and about five days after the operation; she was, however, the subject of an enormous umbilical hernia.

Dr. Barnes observed that summaries of most of Dr. Wuckel's cases would be found in the 'British and Foreign Medico-Chirurgical Review.'

Dr. Playfair said that in the only case of Cæsarean section which he had witnessed, a difficulty was met with which he had not seen alluded to in descriptions of the operation, and which certainly had not occurred in the case under discussion, nor apparently in any of those described by Dr. Greenhalgh. In the case in question the uterus was opened near the fundus, and although no time was lost in removing the child, still the uterine parietes contracted with such rapidity and force that the head was caught in the incision, and some difficulty occurred in extracting it and the placenta. This was doubtless a fault on the right side, as it diminished the risk of hæmorrhage; but still it

would be well to know how to avoid inconvenience from it. He had thought this might be done by commencing the incision near the lower part of the uterus, instead of at the fundus, when the head might be extracted first. The case to which he alluded also showed the risk of delay before operation. The patient was a healthy woman who might have done well, but she was allowed to remain so many days in labour before further advice was sought, that when seen the vagina was found in a state of slough.

Dr. Oldham recommended the incision to be made towards the lower part of the uterus, at least avoiding the fundus.

OBSTETRIC BINDER.

Dr. Eastlake showed an Obstetric Binder for immediate use after parturition, which he had constructed, and which had been made by Mr. Salmon, of Wigmore-street. It was intended to supersede those which lace up like stays. The binder was very simple in its arrangement. It consisted of two parts, which were fastened in front with the greatest ease in less than a minute by means of four lappets with hooks and eyes. It had also a tail bandage which fastened before and behind, and was able to support the diaper and keep the binder in its place. Dr. Eastlake had tried it several times with great satisfaction. The price was from five shillings.

DESCRIPTION OF A DEFORMITY OF ARMS AND HANDS.

By Dr. J. Shortt, Zillah Surgeon, Chingleput.

Ramasaurny, æt. 20; caste, Pariah; trade pauper; height, 59½ inches; circumference of head, 26½ inches; neck, 12 inches; chest, 28¾ inches; arms, 6½ inches; thighs, 15¾ inches; weight 76 lbs. Father of a child (boy).

The subject of this paper is a native of Southern India, and is well formed in every way except in the arms. His body is of rather small conformation, but apparently stout and well nourished. The acromion process of the scapula

is naturally articulated with the scapular end of the clavicle, and this articulation juts out rather prominently on either side, and is rather more conspicuous from the falling in of the rudimental arms. The os humeri is not in apposition

with the glenoid cavity, which, as far as can be traced, seems perfect. The head of the os humeri lies below this cavity, and the muscles of the arm appear rudimentary. Can raise the arms imperfectly, but not quite in line, or at right angles with the chest. The right arm measures from the point of the acromio-clavicular articulation to the end of the elbow eight and a half inches. The skin here is rugated, having all the appearance of a natural elbow; from this point to the extreme end of the fingers measures six inches

in length, there is no *forearm* or *wrist*. The ulna and radius, with the bones of the carpus are entirely *absent*. The metacarpal bones are directly connected with the lower end of the humerus, and are at right angles with the arm, and turned towards the trunk. The thumb and little finger, with their metacarpal bones, are *absent;* the other three fingers are naturally formed, and with them he was able to clutch my fingers rather firmly.

The motion, at what is intended for the elbow joint, is a slight flexion and extension. He cannot straighten the rudimentary hand in line with the arm.

The left arm is shorter than the right, and measures five and two eighths inches to rudimentary elbow, and from thence to the extremity of middle finger six inches in length. In every other respect the left arm is similar to the right, except that he cannot use the fingers of the former so well as the latter. He could not hold my finger with the left hand. The nails are naturally formed in each of the three fingers of both hands. His body in every other respect is well formed except the feet, in which both the great toes are turned inwards a good deal. All the other toes are natural, and he can walk well.

Remarks.—Believing that an account of this individual might interest the Fellows of the Obstetrical Society, I have had his photograph taken. It is a very good likeness, and shows the deformed arms very nicely. But, to make it more easily descernible, I had a sepia drawing made also which, although not so correct as the photograph, I think shows the arms to more advantage. This drawing was executed by a native artist. With reference to the deformity itself, as far as my knowledge of such matters extends, it is, I believe, more usual for the entire absence of extremities or other parts of the body to occur, or, when deformed, some vestige of the normal parts is always present; but, in the case under review, every part, bones and tissue, are entirely absent, whilst the extreme parts, viz. the hand, is deformed, and stuck on to the end of the arm, thus presenting a very singular appearance.

MISSED LABOUR.

By A. Wynn Williams, M.D.,

PHYSICIAN-ACCOUCHEUR TO ST. GEORGE'S AND ST. JAMES'S, AND WESTERN GENERAL DISPENSARIES.

The subject of missed labour does not appear to have occupied the attention of Obstetric writers to any great extent, as it is not alluded to by many of the systematic writers on midwifery, and when it is mentioned it is so only in a very cursory manner. Since such cases do occasionally occur, the profession must feel indebted to Dr. M'Clintock for having published in the 'Dublin Quarterly Journal of Medicine and Surgery,' several interesting cases that have fallen under his notice and that of his friends. I wish he had, however, laid down some practical rules for the guidance of those who might hereafter meet with such cases; as it must, I think, be admitted by all who have perused each one of those cases, that some steps should have been taken for the purpose of removing the dead fœtus before it had become putrid, and by its putridity, and the emanation of obnoxious gases, so affected the system of the parent as to cause her death. At the time the cases came under the observation of Dr. M'Clintock little or nothing could have been done for the sufferers. But I do think that if proper rules had been laid down for the guidance of the accoucheur means might have been adopted earlier for the purpose of removing the lifeless mass before putridity had taken place, with every prospect of success in saving the life of the mother. It is for the purpose of eliciting the opinions of the Fellows of the Society as to the proper measures to be adopted in future, that I lay before them the particulars of the steps which I have had recourse to in somewhat analogous cases. I will, in the first place, briefly relate the particulars of three cases occurring in my own practice. Not having any notes of the first, or, more properly speaking, of the first two

cases which happened some years ago in the same individual, I can only speak from memory.

In the year 1857 I was sent for by another practitioner to see S. P—. On my arrival I was introduced to a spare, badly-nourished young woman of somewhat feeble intellect, aged about twenty-five years. She was pregnant of her second child, and had been delivered on the previous occasion by manual interference; in what way I was unable to learn. I was informed that labour had commenced nine days previous to my seeing her, and that the liquor amnii had escaped at that time. After its escape uterine action ceased, and the patient had felt no movement of the child since. On examination, I found the uterus above the brim of the pelvis, but the os uteri readily dilatable. All means having been adopted for the purpose of exciting uterine action unavailingly, being satisfied also that the child was dead, I determined to introduce my hand into the uterus and bring down the legs, and so deliver, which I did, nothing untoward happening. In the year following I was again sent for. I found that labour had commenced about forty-eight hours previous to my arrival; the waters had escaped about ten hours, since which time the pains had entirely ceased, and the patient was apparently getting much into the same state as on the previous occasion. The uterus had not descended into the pelvis, but the os was found to be easily dilated. As the child was still alive I determined to endeavour to save its life by turning at once; this I readily succeeded in doing. The child was born alive, but being very small and feeble did not live many hours. In this instance the patient lost a good deal of blood, but nevertheless made a good recovery.

B. H—, a patient of the St. George's and St. James's Dispensary, æt. 42, of spare habit and badly nourished, mother of eleven children, previous confinements natural. I was sent for to her by the midwife, 10 p.m., the 20th of December last. I was informed that the midwife had been

sent for an hour previous to my arrival in consequence of two large masses of blood having passed from the patient a short time previously, which were shown to me. The larger was about nine inches in length by five in width, and about an inch and a half in thickness, very much resembling a piece of liver; the other somewhat smaller. Upon inquiry I learned that she had been seized with slight labour-pains nineteen days previously, which was about the period she should have been delivered. At that time the waters broke, after which the pains ceased entirely, and the patient continued her work as usual. With the exception of feeling weak there was, as she said, nothing particular the matter with her. She had not, however, felt the movements of the child since the escape of the liquor amnii. On the evening I was sent for she had carried her youngest child upstairs and laid it upon the bed, lying down by the side of it to hush it to sleep. On resuming the erect posture the masses of blood before alluded to suddenly passed from her. She felt faint and lay down again, where she had remained until my arrival. On examining my patient I found her with a very feeble pulse, but complaining of no pain. Examining per vaginam I found the uterus situated still in the abdomen, the os undilated but readily dilatable, but there was no uterine action whatever. I ordered her brandy and water at short intervals, and gave tincture of ergot, which was almost immediately returned without producing any contraction of the uterus. It being impossible to deliver by means of the forceps, I introduced my left hand (which I may here observe I have always, or at any rate for many years, been in the habit of doing, owing to my left hand, from the effects of an accident in youth, being much smaller than the right, and was not aware until lately that there was anything peculiar in so doing)—I introduced then my left hand, and on feeling the cord I discovered no pulsation, which satisfied me that the child was dead, a conclusion I had previously arrived at. I secured one foot, and with the assistance of my right hand placed over the abdomen, readily turned the child, brought down both feet

and delivered; the secundines immediately following the child. Scarcely any blood was lost; the uterus contracting more firmly than I had anticipated. With the assistance of a moderate supply of stimulants and nourishment the patient made a good recovery. The fœtus was full grown, and had a mottled appearance due to gravitation of blood to depending parts, showing that it had been dead some time. Several interesting points arise for consideration out of the above history. We have uterine action commencing at its proper period, suddenly ceasing after the escape of the liquor amnii, without apparently any attempt at its renewal. My opinion as to the causes are these:—The patient was of a feeble badly-nourished habit, this probably was the primary cause. No doubt there was sufficient uterine action in the first instance to cause dilatation of the os, rupture of the membranes and expulsion of the waters, after which most likely the uterus ceased to contract, partial or entire separation of the placenta took place, blood being poured into the uterus, occupying the space previously occupied by the liquor amnii. How long the patient might have continued in this state had it not been for the accidental slipping away of the masses of blood, so as to call attention to her condition, it is impossible to conjecture; but we may, I think, believe that she might have remained undelivered for as long a period as did the unfortunate sufferers in the cases related by Dr. McClintock, and that interesting case exhibited before the Pathological Society by our President. I would venture to suggest that, in future, as soon as the accoucheur's attention is called to a case of the kind, he should, after satisfying himself of the escape of the liquor amnii, the death of the fœtus, the dilatability of the os, proceed, allowing a reasonable delay, and after employing the recognised means usually adopted to cause contraction of the uterus, to turn and deliver. Should, unfortunately, the case not come under the notice of the accoucheur until putrefaction has set in, whilst endeavouring to remove all loose portions I would recommend the syringing out of the vagina and uterus with a weak solution of iodine, about

three drachms of the compound tincture to eight ounces of water, as after some fifteen years' experience of its utility, I can with confidence recommend it as the most efficacious and beneficial disinfectant we at present possess.

Dr. Barnes said there was a perfectly ready and safe way of dilating the cervix uteri and of emptying the uterus, which gave more complete control over cases of this kind than was before possessed. It might not be desirable to open the cervix and deliver in such a case as that of Dr. Oldham, in which there was no indication of labour, and there was ulceration and perforation of the wall of the uterus. But such a case was probably quite exceptional. The more usual course was for an effort at labour to occur, for this to pass over, the fœtus being retained and undergoing more or less change; this would be the cause of hectic or irritative fever under which the patient sank before ulceration of the walls of the uterus took place. He had seen one such case, in which he had advised artificial dilatation; this was not adopted, and the patient died. If the state of the cervix was such as to resist the action of his dilator, the combined use of incisions might be necessary. He had seen a case to which he was summoned on the belief "that there was no os uteri." Labour had been going on many days; the case would have been one of missed labour had the patient been able to live through undelivered. The cervix was perfectly closed, and the uterus was exhausted. In this case he spent five hours in opening the cervix, which was enormously thickened, by incisions and his dilators; and was then enabled to deliver, after craniotomy. The patient did well. The proper course, he believed, was to empty the uterus.

Dr. Greenhalgh did not consider that Dr. Williams' cases could be placed under the head of missed labour, and asked the President, who was the first to use the expression, what he considered the correct definition of the term. He (Dr. Greenhalgh) had never met with a case of missed labour.

Dr. Oldham said that he had used the term as the most appropriate he could find. It was a case in which the time of natural labour passed by without any pains, and the child was not expelled.

Dr. Braxton Hicks thought it highly important to be certain that the full term had really expired, as it was very difficult to say whether it had been reached in any case before a month at least had elapsed. In the cases recited, he thought that probably, although the children were dead, they would in due time have been expelled by natural efforts.

Further discussion arose, in which Dr. Fox, Dr. Eastlake, and Mr. Owen joined.

Dr. W. Williams, in reply, said that he did not consider the second case as a case of missed labour proper, as the woman was delivered for the purpose of saving the life of the child, as stated in the paper; the patient, it is true, apparently merging into the same state as at her previous confinement. As no accoucheur would, he was sure, leave a placenta in the uterus to become putrid, with the risk of noxious gases affecting the system of the patient, causing pyæmia, &c., so he conceived it to be his duty to extract a dead fœtus, having of necessity first satisfied himself that the patient had passed the proper period at which she should have been delivered, that the liquor amnii had escaped, that the fœtus was dead, and that all proper measures had been adopted for the purpose of causing expulsion of the child by exciting contraction of the uterus itself. As regards the extraction of a dead fœtus before the full term of utero-gestation, the question does not arise. Of course no one would think of doing so, supposing the os to be rigid and undilatable; he could only say that such was not the state of the part in the cases related. But he was of opinion that it would be quite justifiable to endeavour to dilate by means of the tampoon, or even by incising the os, in order to extract the child. For he conceived there would be less risk to the mother in incising the os and causing a simple clean wound in the uterus than by leaving a fœtus in utero to become putrid, especially as in all the cases recorded the patients have died sooner or later. In the third case, there was an additional reason why labour should have been terminated as speedily as possible, namely, the danger of blood being again poured out into the uterus and death from hæmorrhage.

POST-MORTEM EXAMINATION OF A WOMAN AT THE FULL PERIOD OF GESTATION, AND IN THE FIRST STAGE OF NATURAL LABOUR. DEATH BY ACCIDENTAL HÆMORRHAGE, CHIEFLY INTERNALLY.

By Frederick James Gant, F.R.C.S.,

SURGEON AND PATHOLOGICAL ANATOMIST TO THE ROYAL FREE HOSPITAL.

(Communicated by Dr. Barnes.)

A. C—, æt. 35, a well developed and healthy woman, the mother of five children, all living, and pregnant with her sixth child, suffered no particular inconvenience until the full period, less a fortnight, according to her calculation. She went about her household duties as usual, and three days, I believe, before her death, she made a pudding, without complaining of any fatigue, or appearing fatigued. Then, however, she was seized with pain in her loins, extending round the lower part of the abdomen, and the urine being turbid, this pain was referred to the kidneys by the medical practitioner who now saw her for the first time. Venous hæmorrhage per vaginam supervened on this pain, but although blood continued to dribble away until her death, the whole quantity thus lost was inconsiderable. Yet she became more and more faint, and at length died, as if asleep.

An inquest was held, on behalf of which the Coroner, Mr. Humphreys, requested me to make a post-mortem examination of the deceased.

The body had not undergone any notable decomposition. Passing my fore-finger into the vagina, I could distinctly feel the head of the child through the substance of the uterus, but not the os uteri, which lay posteriorly and out of easy reach with the finger.

On making an incision the whole length of the abdomen,

the uterus, of a livid red hue, at once came into view. Anteriorly its whole extent was in contact with the wall of the abdomen. It occupied the whole abdomen up to about two inches above the umbilicus. Here the fundus uteri was bordered by the transverse colon, towards the left extremity of which a knuckle or two of small intestine intervened between it and the fundus. Above the transverse colon, the stomach, to the left, appeared somewhat compressed—in this, the recumbent and supine position of the body, and the pyloric portion of this organ extended nearly across the abdomen, almost completely intervening between the liver and the right half of the transverse colon. Laterally, bounded by the abdominal wall, the uterus sloped off, at the crest of the ilium, into the pelvis, and occupied the whole of its cavity above the *brim*. Thus defined, this organ had the shape of a chaumontelle pear,—its stalk-like extremity, however, being pendent. Although occupying so large an extent of the abdomen, the uterus itself projected much less than the external appearance of the abdomen would have suggested. On the contrary, its anterior surface was nearly flat, the whole organ somewhat flaccid, and it lay easily adjusted within the abdomen.

Is the greater or less protuberance of the abdomen in different women equally advanced in pregnancy, owing rather to the proportion of fat and the degree of laxity of the abdominal wall, than to the size of the gravid uterus, as representing its own substance, the size of the child, and the quantity of liquor amnii? In this case, there was room for ante-version, latero-version, right or left, and for retro-version of the uterus. In fact, as the body now lay on its back the uterus was retroverted slightly.

Raising the fundus, it was in contact with the *under* surface of the mesentery, which, as the uterus rose in the abdomen during pregnancy, had been pushed upwards and to the left, *i. e.* towards the cardiac end of the stomach, carrying with it the whole of the small intestine, which was here closely convoluted. The under surface of the mesentery thus formed a concave bed for the fundus uteri, more

particularly its left half. So marked was this adaptation, that although I had now removed the fundus from its bed, the concavity formed by the under aspect of the mesentery still remained, and the small intestine remained displaced as described. The right extremity of the fundus, posteriorly, was in relation, not contact, with the right lobe of the liver, and here the peritoneal investment of the uterus, to the extent of about a crown-piece, had acquired a yellow colour, doubtless being stained with bile colouring matter.

Below the large fundus uteri, the posterior aspect of this organ was in contact with the lumbar vertebræ, aorta, vena cava, kidneys, &c., and more inferiorly the psoas and iliacus muscles on either side; the peritoneum alone intervening between all these structures and the uterus. To the extreme right and left, but still posteriorly, was the ascending and descending colon, respectively; both of which appeared to have suffered some degree of compression, compared with the transverse colon, which as I have said, arched forward above the fundus uteri, and came freely in contact with the abdominal wall, two inches or so above the umbilicus.

Such being the abdominal, and in part the pelvic relations of the uterus; its colour, a livid red, appeared much darker on the whole of its posterior surface, where turgid veins were plainly discernible through the peritoneum. In the broad ligaments also veins of considerable size were equally engorged. The right ovary was represented by a single cyst as large as a walnut, the left, by one the size of a small spanish nut.

Opening the uterus anteriorly by a longitudinal incision from the fundus to the part corresponding to the brim of the pelvis, its substance consisted of pale muscular fibres intermixed with an equal proportion of fibro-cellular tissue; the whole being pale and thin, averaging half an inch and not exceeding one inch at the thickest part—the fundus.

The amnion membrane was readily separable from the inner surface of the uterus—the *decidua vera*, and having detached the amnion from it to a considerable extent, I then had a complete view of an apparently full-grown

child, as seen through this membrane and suspended in the liquor amnii. By further separating the amnion from the uterine surface, I traced it round on to the placenta, which was situated at the *posterior* part of the uterus, and thence reflected on to the child, thus forming an entire bag. The portion covering the free or fœtal aspect of the placenta, was somewhat adherent, and separated less readily than the reflexion over the whole inner surface of the uterus.

The bag of the amnion contained the usual yellow transparent serous fluid, of which, having opened the membrane, I ladled out with a cup about one pint, but this was not the whole quantity of liquor amnii, some remaining in the pelvis. The child lay with its head downwards, which was fixed in the brim of the pelvis, the occiput corresponded to the right obturator foramen, the chin being directed towards the left sacro iliac-synchondrosis. This, I presume, was the "second position" of Baudelocque. The buttocks occupied the concavity of the fundus, and more towards its left extremity; so that the body of the child was placed somewhat obliquely in the womb, from left to right, above downwards. Anteriorly, the back and loins arched forwards; posteriorly, the whole trunk completely concealed the placenta. On raising the buttocks it came into view, attached to the posterior surface of the uterus, and obversely, in contact with the arms and legs of the child; which were packed up as follows: — The arms, semi-flexed, were drawn inwards over the abdomen, both hands being just below the umbilicus; the legs drawn up embraced the forearms, the knees corresponding with and touching the elbows, while the inner sides of the calves rested on the forearms, the feet meeting together immediately below the hands, and the heels, diverging, rested on the tuberosity of the ischium, either side. The external genitals—in this case, the vulva—were thus somewhat overlayed and concealed. A few drops of urine had passed from the bladder, and a small portion, about the size of a pea, of thick meconium, from the anus.

Nearly opposite the umbilicus of the child, the funis,

coming from the placenta, coursed downwards over the chest to the neck, in the pelvis, thence anteriorly over the back of the neck, upwards again over the chest to the navel. The cord therefore did not pass entirely round the neck of the child.

On withdrawing the head from the brim of the pelvis, which required some slight force to accomplish, it had the usual conical shape of an infant's head at the full period. The os uteri, now seen, was open to the size of about a crown-piece, and distensible; the amnion membrane still closed the opening and bulged through it slightly, as a funnel-shaped protrusion containing the liquor amnii. Here this membrane was easily torn through with the finger, as if prepared to give way, and far more readily than any other portion of it, which was otherwise tough throughout, although extensible.

Having removed the child and the remaining liquor amnii by rupturing the membrane at the os uteri, I then had a clear view of the interior of the uterus, with the placenta still attached posteriorly.

The shape of this uterine cavity, as viewed from above downwards, was that of an inverted pear, its peduncular portion being prolonged by the vagina, which, commencing *near* the base of the sacrum, from the almost equally open os uteri, curved forward to the vulva; thus forming one continued pyriform cavity—utero-vaginal, pedunculated, and curved, inferiorly.

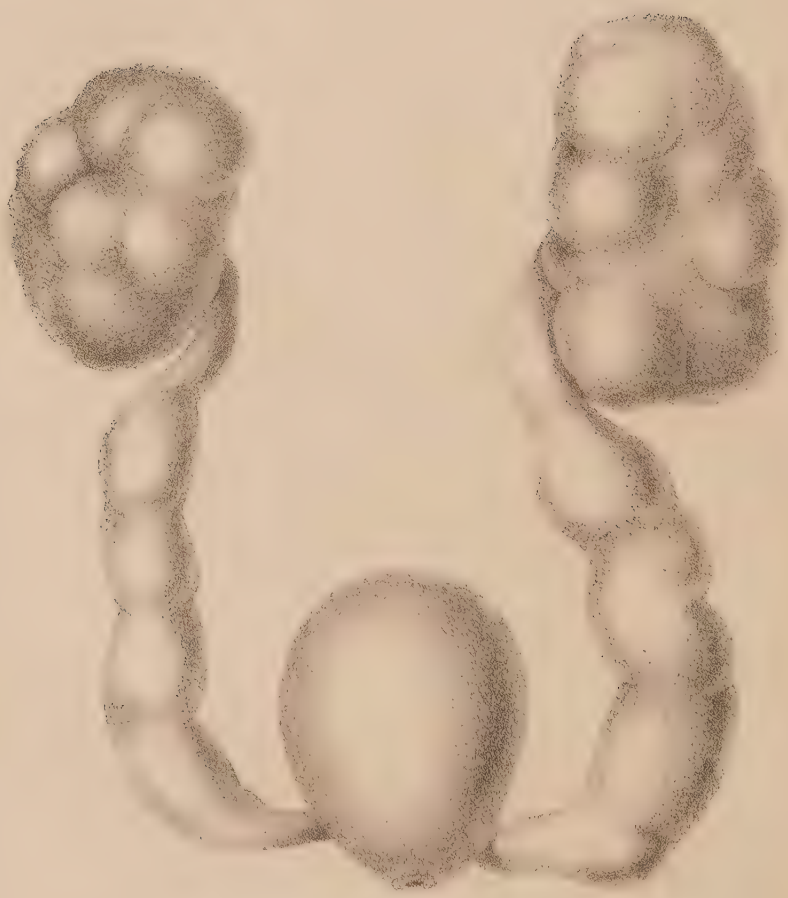
In relation to surrounding parts, those around the body of the uterus having been already described, the small pelvic portion (now seen) was in contact, anteriorly with the bladder, posteriorly with the rectum; but there was this peculiarity worth noticing, respecting the reflexions of the peritoneum or ligaments, so called, in these situations:—that between the rectum and uterus the recto-uterine reflexion of peritoneum was the same as though the uterus were not gravid, only the *cul-de-sac* formed thereby was larger and deeper, as if the peritoneum had here either extended or grown equally with the upward growth of the uterus; but

the utero-vesical fold was completely wanting; the peritoneum passing directly from the upper fundus of the bladder to the uterus, as if the upward growth of this organ had here detached and raised the peritoneum from the bladder without any corresponding extension or growth of it.

I now carefully removed the placenta, and at once discovered the (apparent) cause of death. Hæmorrhage of venous blood had taken place between the placenta and the uterus, forming a clot of such size and extent, as to completely separate the two—excepting circumferentially—thereby cutting off almost all communication between the mother and child. This large black clot weighed 1 lb. 4 oz., and was entirely concealed by the placenta.

The texture of the placenta was soft and fragile without any apparent disease or degeneration. This softening may have been partly *post-mortem*, for, from the appearance of the child, of which in such cases I have had somewhat considerable experience, it had probably died *in utero* about two or three days before the mother's death.

Under all the circumstances of this case, what treatment would possibly, or probably, have saved the mother, child, or both, I leave entirely to the experienced judgment of this learned Society.



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November 2nd, 1864.

Dr. Greenhalgh, Vice-President, in the Chair.

Present—44 Fellows and 7 Visitors.

The following gentlemen were elected Fellows:—Dr. Wm. Aitken, Madras; Mr. Benson Baker, Islington; Dr. Robert Jackson, Notting Hill Square; Mr. Llewellyn Powell, Christ Church, New Zealand; Mr. Wm. Quarrell, Sidbury, Worcester; and Dr. M. W. Turnbull, Melbourne, Australia.

DISTENSION OF URETERS, PELVIS OF KIDNEY, ETC., IN AN INFANT.

By Henry Gervis, M.D. Lond.,

assistant obstetric physician to st. thomas's hospital.

Dr. Gervis exhibited the bladder, kidneys, and ureters, removed from an infant who had died at the age of five weeks, and whose death had been preceded by no other symptoms than those of a gradual decline of strength. The bladder was extremely thickened; both ureters were sufficiently dilated to permit with ease the introduction of a finger; the pelvis of the left kidney was greatly distended, and its secreting structure reduced to a narrow margin, while the right kidney was considerably hypertrophied.

There were two points of much interest in connection with this specimen. First, as to what could have constituted the obstruction, for after birth the child had had no

apparent difficulty in micturition, so that whatever had proved the obstruction before birth must have ceased to do so after birth; and, secondly, it appeared remarkable that sufficient urine should be secreted during the last few weeks of intra-uterine life to produce pressure effects which simulated those resulting from a stricture of many years' standing in an adult.

At the time of making the inspection the bladder was found nearly empty, but both ureters, and especially the left, were greatly distended, although the communication between them and the bladder was unimpeded.

Dr. Graily Hewitt remarked on the curious fact that no stricture was detected in the case now related by Dr. Gervis, nor in the case formerly related by Dr. Hicks. How was the accumulation to be explained? In Kohlrausch's valuable work on the sexual organs it was stated that the bladder, when unduly distended, itself offered an obstacle to evacuations of urine per urethram; the presence of the distended bladder acted in such a way as to mechanically interfere with escape of urine. Was it possible that in these cases now before the Society the accumulation had a like origin?

DOUBLE MONSTROSITY.

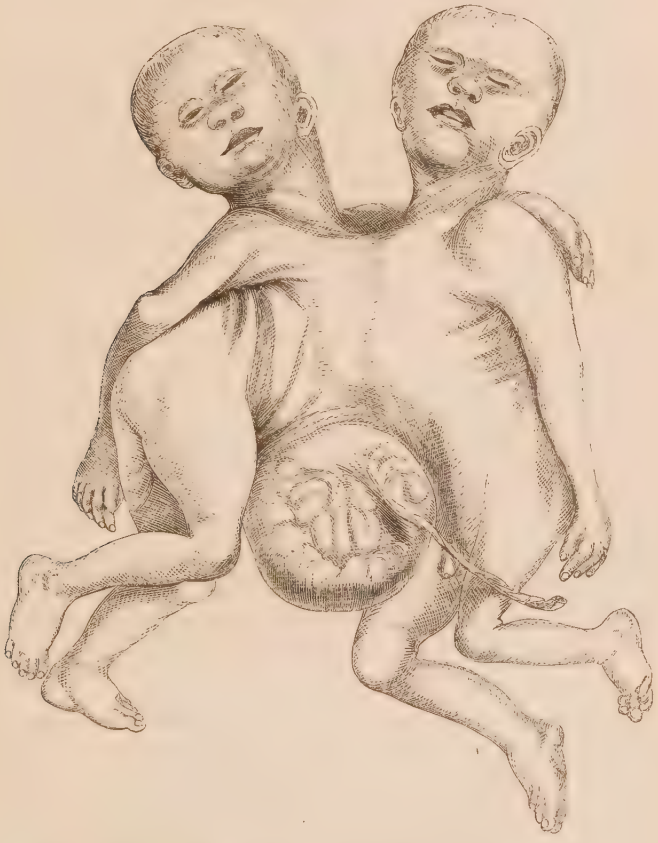
By Fred. F. Jay, Esq., Pulham-Mary, Harleston, Norfolk.

The specimen exhibited is one of double monstrosity. The children, both males, are adherent from the side of the thorax to the abdomen, and the skin of the abdomen is deficient at the lower part, there being apparently little but peritoneum covering the viscera. Otherwise the two children appear perfectly formed. There is only one umbilical cord.

I could not gather much from the midwife or the mother about the labour. The former says one head was born first, then the other, and lastly the body, and that the children

were alive, but died immediately they were completely delivered. The labour she describes as a very fair one for the first; the woman altogether was not ailing more than twelve hours, and did very well indeed.

When I saw them, a few days after delivery, they ap-



peared to have been well-nourished and fine children for twins.

The mother, I must add, was twenty-one years of age, and the children bear a striking likeness to the father, who is also young.

A SIMPLE INSTRUMENT FOR VAGINAL INJECTIONS.

By Adolph Rasch, M.D., M.R.C.P.,

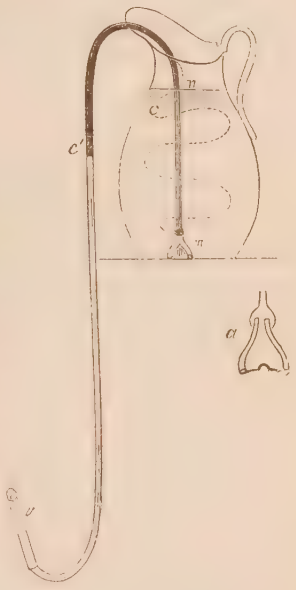
PHYSICIAN TO THE EASTERN DISPENSARY OF THE GERMAN HOSPITAL.

The inefficiency and dangers of the cheap glass syringes, which are still in use to a great extent, made me constantly feel the great want of a proper and cheap instrument for vaginal injections for the poor out-patients entrusted to my care. As early as eight years ago I made injections on the same principle according to which the instrument before the Society is contrived, extemporising the required effect with an india-rubber tube and jug.

Before I shortly describe the instrument I ought to mention that Scanzoni (see his 'Frauenkrankheiten,' p. 44) has delineated an instrument almost exactly like mine, the only, but important, difference being that Scanzoni's has a sucking-tube besides the one to be inserted into the vagina, so as to require the former to be removed after establishing the flow by suction with the mouth. The practical objections to this plan are its tediousness and the great chance of having the mouth filled with some disagreeable astringent. An instrument which I happened to see this very day at a patient's of mine, and which she bought at Paris, establishes the flow of the syphon by means of a ball and stopcock in the middle of a long elastic tube.

The instrument I have the honour of bringing before the Society consists of a long india-rubber tube (six to seven feet long, and about as thick as a lady's little finger), made heavy at one end, with a hollow, bell-shaped lead, the base of which has large grooves, to allow the entrance of the fluid from the very bottom of the vessel. It is essential that the india-rubber tube be strong and well made, to prevent its collapse. An elastic thick bougie, with several holes in the bulbous end, and not less than five inches long, is fastened at the other end of the tube.

To use this instrument, place some vessel on a high place (mantelpiece, chest of drawers, &c.), plunge the metal end of the instrument along with about two feet of the tube into the fluid to be injected (the dotted lines show the tube in this stage), and allow the immersed part to fill, which is done in a few seconds; then compress the tube with two fingers over the surface of the water, and lift the *filled* part of the tube over the brim of the vessel and *lower* than the surface of the fluid in the vessel. By this little trick we establish the current in the syphon, and make all contrivances for suction, &c., unnecessary.



The drawing needs little explanation. By straightening the filled tube, *c* will be at *c'*, that is to say, lower than the surface of the fluid, *n*. The dark part shows the tube filled before the compressing fingers have been withdrawn. *a* Represents the metal (the under surface of which is grooved) to which is attached the long flexible tube.

The fluid will, of course, be propelled out of the vaginal tube the more forcibly the higher the vessel with the fluid is placed. When using the instrument the patient should sit over a basin to receive the fluid from the vagina.

Greatly as I rely on injections in the treatment of diseases of the vagina and uterus, I have considered it a duty to bring my simple contrivance before the Society. Having no complicated construction, every one can put it together himself. It cannot get out of order, and deserves a trial.

As the quantity of fluid for a douche should be large, it is advisable to order the ingredients in powders or concen-

trated solutions, to be mixed with a jugful of water. As alum, zinc, lead, &c., are very cheap, there can be no objection to this, even in the practice among the poor.

The instrument is made by Mr. Evan Lewis, 31, City Road.

ANENCEPHALOUS MONSTROSITY.

Dr. J. Braxton Hicks showed an anencephalous monstrosity. The monstrosity was one of twins. Its delivery could not be effected until the cord was divided, owing to the shortness of the latter. The cord was cut through above the brim of the pelvis.

ON THE MANAGEMENT OF THE THIRD STAGE OF LABOUR.

By Dr. Eastlake,

PHYSICIAN TO THE BRITISH LYING-IN HOSPITAL; PHYSICIAN-ACCOUCHEUR TO THE ST. MARYLEBONE GENERAL DISPENSARY; PHYSICIAN TO THE NEEDLEWOMEN'S INSTITUTION; FOREIGN MEMBER OF THE OBSTETRICAL SOCIETY OF BERLIN; ETC.

Perhaps throughout the whole range of obstetric medicine few subjects have been regarded with such entirely opposite views as "the management of the third stage of labour;" and perhaps no chapters so interesting exist in the history of midwifery as those which treat of the fluctuation of opinions with regard to this matter. Even in the present day some of the most eminent accoucheurs are at variance on this point. I shall therefore offer no apology for bringing the subject before the Fellows of this Society, but only trust that it may provoke some discussion, and thus call forth the opinions of the most experienced amongst us.

I propose, first, to give a brief historical sketch of the various principles which have, in past ages, governed the

management of the placenta; and then, having myself already well weighed and analysed the various opinions of more modern authorities, I shall submit the conclusions to which I have arrived as to the most rational treatment of the third stage under normal conditions. Lastly, I shall consider and endeavour to describe those circumstances which on some occasions cause us to modify our treatment, and on others authorise and occasionally compel us to have recourse to the manual removal of the afterbirth, in order to arrest approaching danger and place the patient in a state of safety. In treating of this subject it will be as well, perhaps, to confine myself entirely to the full period of utero-gestation, and not treat of the deliverance after abortion. The latter would in itself be well worthy of a special essay. Barlow, in writing on this subject, alludes particularly to this point. He says, "Those authors who have attempted to harmonise these discordant modes of practice appear to have too much generalised their precepts, and omitted drawing a line of distinction sufficiently explicit between cases of *abortion* and the parturient process after the full period of gestation, as well as in other incidental instances; for the manual extraction of the placenta is in importance equal to that of parturition itself. Hence it appears probable that these different modes of proceeding have been implicitly adopted from one age to another without a sufficient investigation of the respective views and principles on which they are founded. It is not, therefore, surprising that there should be such diversities of opinions on the subject; nor can we wonder at the varied results of modern practice."

Glancing, then, for a moment at the Hippocratic age, we gather from Denman and others that at that epoch it was not customary to divide the funis after the birth of the child until the placenta was expelled; and that in cases of retention, to favour expulsion, medicated substances were introduced into the vagina, and this was done, occasionally, many days after labour, when the afterbirth was in a putrid state. In the work 'De Superfœtatione' we find the

following injunctions :—" If the secundines come not away easily the child, must be left suspended to them, while the woman is seated on a high stool, that the fœtus, by its weight, may pull them along ; and, lest this should be too hastily effected, the child may be placed on soft wool, or on two bladders filled with water and covered with wool ; the bladders being punctured and the water evacuated, they will subside, and the child, sinking gradually, will gently draw the secundines away ; but should the navel string happen to be broken, proper weights must be tied to it to answer the same purpose. These are the safest methods of extracting the placenta."

It is certainly to be hoped that cases of "retained placenta" were of rare occurrence in those days. It would appear that Celsus recommended the removal of the secundines immediately after the birth of the child ; but as he gives this advice in a chapter describing the mode of delivering a dead fœtus, and uses the words "quoties infans protractus est," Ramsbotham and others imagine that he did not counsel the hasty removal of the placenta. Paré, it seems, writing in the fifteenth century, followed this practice, but repeatedly enjoins extreme caution ; this advice, it appears, was unheeded, and often the afterbirth was torn rudely from the uterus.

Ruysch, who flourished as an anatomist at Amsterdam at the end of the eighteenth century, was empowered by the magistrates to inspect and regulate the practice of midwifery in that city. From his knowledge of the evils which resulted from the usual method of managing the placenta, he strongly interdicted its speedy extraction, and preferred, in a great degree, trusting to the unaided powers of nature. It is greatly to be feared, however, that even long after this period the teaching of Celsus was still adhered to in this country, and that between the years 1730 and 1740 the doctrine was, with but slight modifications, carried on by Chapman, Sir Richard Manningham, Smellie, and others. These dangerous precepts were fortunately doomed not to have a long reign, for shortly afterwards William Hunter

appeared upon the obstetric field, and his principles were so diametrically opposed to the views which then existed on this question that a reaction at once set in, and it was not until after disastrous accidents had resulted from the universal practice of trusting *in all cases* to nature alone that we were enabled, by steering carefully between the Scylla and Charybdis of medical practice, to arrive at that more rational judgment which happily prevails amongst most of us in the present day.

Perhaps, before entirely leaving this rough, and, I fear, imperfect description of the opinions which existed among the accoucheurs of times gone by on this point, it will not be entirely out of place if I allude to some strange notions on the subject which have existed, and which still possibly linger, in some remote spots of the Emerald Isle. My friend Sir William Wilde, in his very interesting essay on 'Irish Superstitions and Popular Practices in Midwifery,' says, "In cases of retention of the afterbirth it is even still a practice to force a piece of mould candle down the patient's throat. It is possible that, by inducing vomiting, it may prove efficacious in causing the uterus to expel its contents. But in almost all instances among the lower orders in the remote districts, where the placenta has been retained for an unusual length of time, the cord is either tied to the patient's thigh or held fast by one of the attendants. I remember having been sent for to a case of this description in a distant part of the country; I found the midwife on her knees at the bedside, with a firm grip of the funis in her hand, which she exultingly displayed to me, observing, 'Doctor! I never let it out these five hours!' It is a popular belief that if the funis were let go it might slip back into the uterus and be for ever lost sight of." He adds, "The human placenta is either destroyed by fire or buried; it is usual to place it under a hedge, or in some locality where its grave cannot be polluted by the foot of man or beast."

It will be quite unnecessary for me to give the various opinions of modern obstetricians on the subject in question.

Suffice it to say, that although differences do exist, it is, in the present day at least, chiefly in minor details only; the general principles to which I shall shortly allude being in this country almost uniformly accepted.

There can, I think, be little doubt that one of the most fruitful sources of difficulty in the treatment of the placental stage arises from mismanagement at the termination of the second stage of labour. Formerly, as soon as the head of the child was expelled, it was undoubtedly the custom among some accoucheurs to extract forcibly the body, with the mistaken notion of at once liberating the patient from further pain. It is quite needless for me to dwell on the variety of evils with which this practice was fraught. With regard to the question under discussion, however, it has a direct bearing. Collins has well observed, in speaking of retained placenta, that "the true time to guard against this untoward occurrence is during the delivery of the child. . . . . The greatest attention should be paid to promote the contractions of the uterus, by leaving the expulsion of the child to its unaided efforts, thus allowing it to empty itself slowly and gradually, at the same time with gentle pressure following down its contraction, until, the child having been wholly excluded, the uterine tumour be found to occupy principally the cavity of the pelvis." The great teaching on this point in the Dublin School of Midwifery, and which I personally follow, is to keep up a steady pressure with the left hand upon the fundus uteri; and if the medical attendant is obliged to relinquish his hold upon the womb, either from fatigue or for the purpose of attending to the infant, he should always direct the nurse to continue diligently the pressure until the great object is attained, namely, that of getting the afterbirth excluded and the uterus firmly contracted. Many practitioners apply the binder as soon as the child is expelled. Personally, I consider this inconvenient, as it is generally necessary to retighten it after the placenta has passed, and should the womb not be contracting well we have a far better command over that organ when the hand is applied directly to

the surface of the abdomen. The next great principle, and which is much insisted upon by my esteemed friend Dr. M'Clintock, is to *wait for fifteen or twenty minutes before pulling the funis or making any digital examination whatever*. He lays great stress upon this point, because he believes, and I thoroughly concur in his opinion, that irregular contractions of the cervix, and consequent incarceration of the placenta, most frequently are induced by tentative explorations soon after the birth of the child. His description of the *external* manipulation in this stage is so practical and excellent that I am sure no excuse is necessary if I quote his own words; I take them from his joint work with Dr. Hardy:—"In compressing the uterus for the purpose of extruding the placenta, or getting rid of coagula, it is important for the success of the operation to get the edge of the hand *behind* the fundus, and, grasping the organ, to press *downwards* and slightly *backwards*. When this is duly attended to it will require little exertion and a very trifling degree of pressure to effect the desired object. We can confidently assert that when the pressure is applied judiciously (as just described) it need not be by any means great, and has never been productive of more than momentary inconvenience to the patient, whereas if the above precautions be not attended to ten times the amount of force will be necessary to effect the same end, in consequence of which rude handling the uterus can scarcely fail of being injured in some way or other."

I am now fully persuaded, after close observation in many hundreds of cases, that this external pressure, if properly applied, is, in the majority of instances, quite sufficient *per se* to effect the expulsion of the afterbirth, without any traction whatever on the funis; in other words, I regard this *vis à tergo*, as it may be nominated, and which is nature's process, far superior to the *vis à fronte*, which is an artificial proceeding. Let me add that I consider the great secret, in the manœuvre just described, is to exert the pressure during a contraction—in fine, to act in unison with nature, as we do in the application of the forceps, where we

apply our chief force at the moment of a pain. If any traction on the funis be considered at all necessary, the pressure on the fundus uteri ought, in my opinion, still to be continued, and we should therefore direct some competent person to take "charge of the contraction." Should the placenta be found in the vagina, or even partially protruding through the os uteri, it can generally be easily removed if in its withdrawal we always bear in mind the axis of the outlet. As it is just escaping from the vulva it is advisable in all cases to twist it a few times round from left to right, so as to collect the membranes into a sort of cord; this is decidedly the most effectual means of preventing any retention of their fragments, which would, I need scarcely say, produce evil results. In the 'Edinburgh Medical Journal' of last April Dr. Alexander Simpson has given some very interesting notes of a complicated case of labour, and at the end of his paper he makes some excellent observations with regard to the subject we are considering. It appears that he advocates external pressure in preference to traction on the funis in this stage; and although some may imagine that this is, after all, no modern idea, I entirely agree with him that it materially differs from the ordinary British practice. He justly observes that the teaching in our manuals clearly demonstrates the fact. It is right to mention that Dr. Newman, of Fulbeck, Grantham, has, in the 'British Medical Journal' of May 12th, 1860, strongly recommended pressure through the abdominal parietes in writing on this subject, and has mentioned the following advantages:

"1. The certainty as to the actual state of the uterus.

"2. The control thereby obtained over the quantity of blood poured out during the process of detachment of the placenta.

"3. The ultimate attainment of complete uterine contraction.

"4. The almost complete emptying of the uterine cavity from coagula, &c.

"5. The much increased certainty that concealed or post partum hæmorrhage will not occur.

"6. The absence of hour-glass contraction or undue detention of the placenta."

In justice, also, to the Dublin School of Midwifery, it is only fair to mention that external pressure has for very many years been greatly insisted on in the treatment of the placental stage, and has most unquestionably formed, at any rate, the *principal* element in the extrusion of the after-birth. Dr. A. Simpson has given such an excellent historical outline of the manner in which of late the management of the placenta by external manipulation has been, and is, gradually becoming the practice amongst many accoucheurs of distinction, that I may perhaps be excused if I extract some of his notes. He refers also to the writings of those who have paid attention to this particular subject, and this may be interesting to any who are anxious to pursue the question still further.

Alluding to this special point of our discussion, he says, "I apprehend that, though a few practitioners amongst us are in the habit of following out this plan in most of their cases, the ordinary practice of the profession in Britain materially differs from it, and consists, as we find laid down in all our text-books, of waiting ten or fifteen minutes till the return of uterine contractions may have detached and expelled the placenta, then examining to discover the position of the afterbirth, and removing it; and when it does not come away at once, making gentle traction on the cord, while the uterus is stimulated to more energetic action by occasional friction, but not with such a forcible degree of compression as would suffice to separate and squeeze out the contents; or if, in the practice of some obstetricians, the external manipulation of the uterus is insisted on as the chief element for successful completion of the third stage, yet even with them the internal interference with the cord and placenta is not entirely laid aside. It was only by degrees that the present practice developed

itself out of the expectant kind of treatment that followed the rough measures so much in vogue in the early part of the last century; and we find Dr. Wallace Johnson, who seems to have been the first to publish instructions for the treatment of the third stage with the aid of external pressure, recommending that the compression be made at first by the two hands of the parturient woman, and only subsequently by the practitioner." Then Charles White, of Manchester, states more precisely that, when after the birth of the child a pain comes on "the secundines will be easily extracted by gently pulling the navel string, and here an easy pressure upon the abdomen, by assisting the uterus to contract, will be of service."

Subsequently, Dr. Clarke, of Dublin, rendered the practice still more perfect by insisting on our "pursuing, with a hand on the abdomen, the fundus uteri in its contraction until the fœtus be entirely expelled, and afterwards continuing for some time this pressure, to keep it, if possible, in a contracted state." But in Germany, up till within the last few years, interference in the last stage of labour has been directed rather to extraction of the secundines by traction of the cord from below than by pressure upon the uterus from above, as may be seen by a reference to the standard works of Scanzoni, of Würzburg, Braun, of Vienna, &c. Even Professor Spiegelberg, of Frieburg, who has taken an active and important part in the advance that is now being made in this direction in German practice, gives in his text-book, published in 1858, more prominence to the traction by the cord than to the compression of the uterus. At the meeting of the Association of Physicians and Naturalists, held in Königsberg, in September, 1860, Dr. Credé, the distinguished professor of midwifery in Leipzig, brought prominently before his professional brethren the results of his experience, and proposed, as the general rule, in the treatment of the last stage of labour, that the practitioner should seek to effect the expulsion of the after-birth and membranes from the genital cavities by external manipulation alone, without interfering with the cord or

introducing the fingers into the vagina. He had already recommended this kind of practice in his clinical lectures on midwifery some years before; but his observations seemed to have exerted no wide-spread influence till he came forward at the meeting referred to, and, after showing the well-known dangers attendant on the common practice of pulling at the cord, and the great success of his own, made the bold allegation that when the new plan of treatment should have come into general use "the spectre of the adherent placenta would be scared away" from the domain of midwifery. Then the profession took the matter up, and Abegg, in Dantzic, Strassman, in Berlin, and others, published successful results from the adoption of the new practice. We may judge of the improvement effected by the introduction of Credé's plan of treatment by the statistics of Bossi, who states that, in these clinical wards at Vienna, where the new method was in all cases adopted, the cases of post-partum hæmorrhage only amounted to 1·47 per cent., while in the other wards, where the old line of practice was followed, these amounted to 3·52 per cent. In the former the hand had to be passed into the uterus to separate the placenta only once in 315 cases; in the latter, once in 78. Then we find Goschler averring that incarceration of the placenta is most frequently due to an inflexion of the uterus, resulting from its relaxation after labour, and that this can be most effectively treated by Credé's method, and the results of the practice in the wards of the Berlin maternity, as given by Winckel, are all in favour. In the new edition of Naegele's text-book the editor, Dr. Grenser, of Dresden, states that he "has introduced this practice into the Lying-in Hospital at Dresden during the last two years, and has likewise employed it extensively in private practice, so that he can commend it on the ground of the fullest experience. The name of Professor Spiegelberg has been associated with that of Professor Credé's in connection with this improvement in German obstetric practice, although his practice differs from that of his Leipzig colleague, in that he does not seek to effect the complete expulsion of the secundines

from the genital canals by external pressure, but rather follows the British practice of following down the uterus with the hand, and then aiding the contractions of the uterus in the expulsion of its contents by external pressure. Doubtless, the result of all these discussions will be to bring the German practice more into correspondence with ours; but perhaps we also may have something to learn in the way of trusting, more than we have been in the habit of doing, to uterine compression, and less to tractions on the cord."

I shall now proceed to the consideration of those circumstances which, as I have said, cause us to modify our general management of this section of labour.

In treating the subject of "retained placenta," we are arrested at the very threshold of our inquiry by the uncertainty of what should be the exact definition of this term.

Obstetric authors, even of recent date, express diverse opinions upon this point, some saying that a placenta is not to be regarded as unduly retained until four hours have elapsed after the birth of the child, and that no interference is justifiable until that period has expired. Others, again, advocate its removal within one hour, no matter upon whatever cause its retention depends, and it is amongst the latter theorists that I wish to place myself. Dr. Lumley Earle, who has recently written upon matters bearing on this subject, is inclined to limit the period to a half an hour; he argues that the operation of extraction causes less pain than when it is deferred later, the sensibility of the soft parts being diminished for a short time after the birth of the child, owing to the numbing influence which the pressure of the head has produced. It must, of course, be clearly understood that I am now alluding to cases of simple retention, uncomplicated with hæmorrhage, convulsions, rupture of the uterus, &c., or any other untoward event, which, as most authorities admit, would justify a speedy removal of the placenta. These circumstances I shall allude to presently.

My own reasons for not wishing to postpone the extraction of the afterbirth beyond an hour are, *first*, because

I believe that no conditions are improved where delay occurs beyond this time, and, indeed, some may often be greatly aggravated. *Secondly*, because I feel sure that the injurious influence on the mind of the patient under such circumstances is often very considerable, and, of course, this increases the longer the extraction is deferred. The various psychological conditions of women in child-bed have not, I think, been sufficiently dwelt upon by writers on midwifery.

It is not my intention to give more than a general outline of the different causes which induce retention of the placenta, and this I do chiefly because I am anxious, if possible, to obtain some new suggestions on the subject from the Fellows of this Society. It will be interesting to gather statistically what is the average per-centage of this complication, and I quote from the Dublin reports, as the numbers contained therein afford a large field for observation. The cases of retained placenta, from all causes, which occurred in the Lying-in Hospital during Dr. Collins's mastership were 66 out of 16,414 labours, which is equivalent to 402 in 100,000. From Sinclair and Johnson's report we find that 57 cases occurred in 13,748, which is equal to 414 in 100,000; and M'Clintock and Hardy record 28 cases having happened in 6634, which would make 422 in 100,000 cases. In considering the present part of our subject we must always bear in mind that there are three steps in the *natural* expulsion of the placenta.

1st. Its detachment or separation from the walls of the uterus.

2ndly. Its extrusion from the *uterine* cavity.

3rdly. Its expulsion from the *vagina*.

Now, any of these stages may be delayed, and I will therefore say a few words about each *seriatim*. I imagine that under normal conditions the placenta becomes detached by the last uterine contractions which expel the fœtus, and we will therefore first consider the causes which arrest this process, and are thus brought to *morbid adhesion of the placenta*. I regard this complication—that is, in its true character—as the rarest cause of retention. Both Dr. C.

Johnston, and Dr. M'Clintock, of Dublin, have stated that they never met with a case in private practice; it would be prolonging this paper unduly to enter upon the pathology of this complication. Most authors appear to agree in believing that it is generally the result of inflammatory action existing between the uterus and placenta, perhaps often due to some external injury during the period of gestation, or to some morbid change occurring in the fœtal organ itself. The correct *diagnosis*, however, of morbid adherence is certainly a matter of great importance, as the management of a placenta retained *in utero* differs according to whether agglutination exists or not. By what means do we endeavour to arrive at the diagnosis? We search into the history of the case, and perhaps learn that during pregnancy the patient has accidentally received some injury; subsequently localised pain in the uterine region has been complained of; these symptoms, together with the fact of the placenta not coming away shortly after the birth of the child, are very suspicious, but by no means pathognomonic of adhesion.

I fear, then, we must admit that we have, in the present time, no certain test of abnormal adherence. I use the words "in the present time" advisedly, because I fully believe that when obstetric auscultation becomes more accurate we shall arrive at a means of detecting this peculiar condition. For some years past I have been fully persuaded that by means of auscultation we often possess, not only a *negative*, but a *positive* sign of fœtal death, and I state this opinion boldly, as it has been arrived at purely by clinical observation. I allude to a peculiar modification of the uterine souffle, which to my ear is very characteristic when fœtal life has been extinct for any time. Few accoucheurs will, I think, deny that when they have been carefully auscultating in a case of supposed fœtal death they have generally heard the souffle very distinctly, but it is not a matter of *degree of sound* to which I wish to draw attention, but to a peculiar *alteration in tone*, which to my mind is suggestive of a muffled sawing noise, very different

to the gentle blowing murmur heard in normal cases where a living child exists *in utero*. Many will doubtless regard this as an over-refinement in diagnosis, although personally I am persuaded it is of importance; but I should indeed be bold to endeavour to explain the reason of this variation, when the cause of the very sound itself still remains among physicians a matter of speculation. I will merely repeat that I have observed this change in the uterine souffle sufficiently often to direct attention to it. In cases even where the mother has assured me that she has just felt the fœtal movements, still I have trusted rather to my sense of hearing, and I have afterwards found that I was correct. How soon a modification in the tone takes place I will not venture to say, but it is fair to state that it has been most distinct where the fœtus has been born almost in a putrid condition, where other symptoms might, perhaps, as truthfully have indicated this circumstance. Still, regarding the vast importance of a knowledge of fœtal life and death *in utero* in some cases of difficult parturition, I consider that no sign, however insignificant, should be cast aside, and certainly, next to the inaudibility of the fœtal heart, which, though a negative proof, is perhaps the strongest, I regard this peculiar change as being almost as reliable as any positive test we possess. I must ask pardon for this digression from my subject, and state that my only object in alluding to it was because, reasoning from analogy, I apprehend that if my theory be fully established there may also exist some pathognomonic sign of morbid adhesion, which, though still hidden, may yet be easily discoverable by an acute and delicate ear. What other testimony can we depend on as pointing to this condition? We have already alluded to the significant fact of the placenta not being expelled after strong uterine contraction, and of the patient stating that there has been a tenderness in some portion of the uterine region for some time past. In addition to these the uterus will convey the idea of being of much greater bulk than when the afterbirth is lying detached within its cavity. Internal examination will trace

the funis passing within the os; the placenta probably will be unable to be felt unless the hand be introduced *in utero*. More or less hæmorrhage is almost sure to be present, and its amount will, I think, show in some measure to what extent the fœtal organ is glued to the inner surface of the womb. When there is little or no flooding, these other symptoms being present, we may justly infer that there is entire adhesion. This condition will, I imagine, be found very rarely to exist, and strong attachment is also, I believe, an uncommon occurrence, although most authors describe such cases. Dr. Ramsbotham says, "Instances are sometimes met with in which a portion of the placenta is so closely cemented to the uterine surface that it cannot by any means be detached; nay, I have opened more than one body where a part was left adherent to the uterus, and where, on making a longitudinal section of the organs and examining the cut edges, I could not determine the boundary line between the uterus and the placenta, so intimate a union had taken place between them."

Having, then, determined upon the nature of the case, and convinced our mind, as far as we are able, that morbid union exists, the next question is what line of treatment should be adopted.

I believe that manual extraction, carefully performed, but without delay, is the proper management under such circumstances. Postponement would be worse than useless. It would certainly be irrational to administer the ergot of rye until after the extraction, for we could not hope by its influence to obtain the extrusion of the afterbirth, but by producing powerful uterine action it would only tend to aggravate the difficulty of removal.

It will, I am sure, be quite unnecessary to enter upon the minute details of this operation, but a few general remarks applicable to all cases of manual extraction may not be out of place. Personally I prefer the left hand, believing it to be generally smaller than the right, and on account of its corresponding more conveniently with the axis of the pelvis. The kneeling posture is certainly the most

convenient. I think that every operator should take care that his nails are short. Chloroform will be a great boon if the patient is of an irritable temperament, and any difficulty is apprehended. The arm and dorsal surface of the hand being well anointed, the operator proceeds to introduce the fingers in a conoidal form through the vulva into the vagina, and ultimately into the os uteri. This being accomplished, external pressure with the right hand passed between the thighs of the patient becomes of immense assistance in steadying the uterus. A free margin of the placenta is then sought for, and being found, the fingers are gently insinuated between its surface and that of the womb. After some cautious management, which will cause more or less difficulty, according to the extent of the cohesion, detachment is at length accomplished, and the hand will probably be expelled with its contents by the forcible action of the uterus, which almost always occurs under these circumstances. I have already touched upon a few precautions regarding the withdrawal through the vulva, to which it will be quite unnecessary for me again to allude. So far we have considered the *separation* of the placenta from the wall of the uterus; let us now glance at the second step, viz., the *expulsion* from that cavity. Perhaps not an unfrequent cause of the afterbirth not being duly extruded is its excessive volume, and this naturally occurs often in cases of plural births, where perhaps one afterbirth only exists. To favour its deliverance under such circumstances many have suggested reducing its bulk by dividing the funis, and thus emptying it by the umbilical vein. Should, however, the placenta be *in utero*, I think this somewhat questionable treatment, as the womb would then have but a soft flabby mass to contract upon instead of a firm resistant body, and it will thus have lost, so to speak, its "point d'appui." I believe that proper pressure exercised through the abdominal parietes in such cases (and in all where the delay is due solely to the suspended action of the uterus) will alone be found thoroughly successful. A dose of ergot may also be given with

advantage if we are quite sure that no morbid adhesion or irregular contraction exists.

Another occasional cause of retention is from spasm of the os uteri when the placenta becomes encysted; the diagnosis of this condition cannot be difficult where a careful external and internal examination has been instituted. The routine practice in such cases appears to have been the administration of opium; this is condemned by Bedford, who says we have in belladonna a most efficient therapeutic agent. He recommends that the os uteri should be smeared with an ointment containing a drachm of the extract to an ounce of lard. Dr. Bedford also speaks of ipecacuanha as an important remedy in producing relaxation, and recommends it in tolerant doses of a quarter to half a grain every fifteen minutes.

Other authorities, again, have justified venesection, but this I should think would rarely be indicated. Perhaps, after all, we shall find that chloroform is the most valuable agent we possess. I remember Dr. M'Clintock telling me of a case of encysted placenta where this anæsthetic was administered with the happiest results. The notes of the case were, I believe, given to Dr. Barnes; the facts, however, are as follows:—When Dr. M'Clintock was brought to the patient he found that she had been confined four hours, of her first child, at full time; the placenta was completely *in utero* and the os closed, tightly embracing the funis. He proceeded to place the patient under the influence of chloroform, which only produced great muscular excitement and unconsciousness. She struggled violently, but at length became quiet after a long inhalation. On introducing the hand to extract the placenta, Dr. M'Clintock told me that he was agreeably surprised to find that the afterbirth had been expelled from the uterus and was lying in the vagina; he supposes that the chloroform relaxed the spasm of the cervix, and that the violent struggles of the woman then became sufficient, with uterine action, to throw off the placenta. In some instances, where the afterbirth is thus encased by spasm of the os, I should think the caou-

tchouc bags of Dr. Barnes might be employed with great advantage for the purpose of dilatation, and the placenta carefully extracted with a pair of vulsellum forceps, which would avoid the necessity of introducing the hand into the interior of the uterus. Numerous kinds of abnormal contractions impeding the expulsion of the placenta have been described by systematic writers. I believe that one and all may almost always be prevented by proper management at the birth, and by the avoidance of a too hasty traction on the funis, to which I have already alluded. That of the "hour-glass" variety, in which the circular fibres are chiefly implicated, is considered by most authors to be of very rare occurrence; some even deny its existence, and explain the error by saying that the globular kind in which the os is constricted has almost invariably been mistaken for the central contraction, the operator being deceived, and regarding the dilated vagina as the lower chamber of the uterus. I am quite persuaded, however, that hour-glass contraction, although very uncommon, does exist occasionally. Levret has, I believe, described a case where this contraction existed, together with a constricted os internum and externum, dividing the womb into three compartments. So far, then, for the causes which detain the afterbirth *in utero*. Careful dilatation of the parts and extraction by manual operation, aided by external pressure already described, is, I believe, the best and safest line of treatment. Sometimes the placenta, after its escape from the uterus, may yet be imprisoned in the vagina by an obstinate sphincteric action. Here I believe that firm pressure on the fundus will alone be sufficient to overcome the spasm, causing the os and lower segment of the womb to bear upon the fœtal organ and drive it at once through the vulva.

By this time I fear that I have greatly wearied your patience, yet I trust that I have succeeded in giving a general outline of the causes which arrest nature's process of throwing off the placenta, with a few suggestions as to management. I will now hasten with rapid steps to the conclusion of this paper, but before leaving the subject I think it right to allude

to a matter intimately bearing on the question, and which might be of immense importance in a medico-legal point of view. I refer to the occasional existence of a supplemental afterbirth, which is spoken of by Dr. Barnes and other authors under the name of *placenta succenturiata* or *placenta spuria*. A specimen of such an afterbirth I have seen in the museum of the Lying-in Hospital at Dublin; it was obtained from an ovum of five months. When such a mass remains in the uterus after the true placenta has been expelled it often gives rise to secondary hæmorrhage, and an impression arises that due caution has not been exercised in the extraction of the afterbirth.

Dr. M'Clintock, in writing upon secondary hæmorrhage, mentions this subject, and points out how important it is to bear in mind the possible existence of this anomaly. He remarks—"It seems to me highly probable that the retention of a supplemental placenta may have been the cause of the secondary hæmorrhage, in a case which occurred a few years ago in London, and which acquired much notoriety in consequence of the warm correspondence that took place about it in the periodicals. At all events such an occurrence would have reconciled the apparent conflicting statements of all the parties concerned, viz., of the attendant (on whom much blame was cast), that the placenta had come away unbroken; and of the consultants, that the substance discharged some days after delivery was placental in structure. With such a possibility before us we should certainly be very slow to utter any opinion that might prejudice the character of a professional man, or impugn his veracity."

I have already trespassed so much upon your valuable time that it remains for me now to do little more than enumerate those conditions which authorise us to adopt the speedy extraction of the placenta. Apparently, by common consent, *post-partum hæmorrhage* would stand first on the list of these conditions, although in that instance even much judgment is often requisite. This has not escaped the notice of Denman, who remarks—

"When there is a present hæmorrhage so important as by its violence or continuance to threaten danger, the placenta ought to be immediately extracted out of the cavity of the uterus. This is not an opinion, but a rule of practice. But if there have already been a hæmorrhage so profuse as to occasion danger, and the common consequences of loss of blood, as fainting and the like, have already followed, the placenta ought not then to be extracted, nor the patient disturbed, nor any change made till she is somewhat revived from her extreme debility, as the danger would be thereby increased, and the patient die during or immediately after the operation, as I have seen and known in too many instances; in other words, the extraction of the placenta is to be considered as a remedy for a present or an apprehended dangerous hæmorrhage, but cannot remove the effects of one which has already ceased."

Convulsions may occur immediately after the birth of the child, before the placenta has passed, and this complication may possibly be produced by irritation due to the presence of the latter. In such a case we are, of course, justified in the removal of the exciting cause.

Rupture of the uterus.—Few authors have alluded to the management of the placental stage after this formidable accident has occurred in labour, but Drs. Hardy and M'Clintock deprecate any longer delay than fifteen minutes for the removal after the child has been extracted. The propriety of this practice is sufficiently obvious.

Finally, the rare complication of *inversion of the uterus*, where the placenta is still attached to its surface, is one which I must not here omit to mention. The management of this terrible accident has always been a *quæstio vexata* even amongst the most eminent accoucheurs; some maintaining that the afterbirth should always be detached before attempting to reduce the displacement, while others support the opposite opinion. I am inclined to agree with Dr. Bedford, that no stereotyped rules can be laid down applicable to all cases of this kind; but that we must allow our judgment to guide us according

to the peculiar circumstances of each individual case. I shall therefore leave this question on the debatable ground upon which it stands.

In conclusion, I feel that I have far too rapidly hurried over the last section of this paper, and from want of space have not given to it the due consideration it merits. It might be advisable on some future occasion to take up again this portion of the subject.

Although conscious of the imperfections in this dissertation, I trust that they have been more those of omission than commission; and although I may not have said all that I could wish, and have failed to exhaust the points of interest connected with this subject, let me urge by way of plea, the saying of Voltaire:—"Le secret d'ennuyer est celui de tout dire."

Dr. Palfrey had understood the author to state in his paper that in his opinion the length of time that ought to be allowed to elapse before any active measures were adopted in cases of retained placenta was one hour. Dr. Palfrey distinctly differed with the author. It appeared to him that an hour was considerably too long a time to wait, for by so long delay the evil largely increased. Take, as an example, a case of adhesion of the placenta to the uterus, the result of previous inflammation. Is not the treatment in such a case attended with much greater risk and anxiety after waiting an hour than a delay of half that time? Again, Dr. Palfrey would inquire of the author, would he advise so long a time as an hour to elapse in a case of irregular contraction of the cervix uteri, where probably a portion of the placenta may be felt protruding through the os, and the remainder firmly detained in the cavity of the uterus? Dr. Palfrey's opinion was, that in all cases of retained placenta, from whatever cause such retention might arise, *thirty minutes* was the full extent to which, with safety to our patient, we dare wait. To him it did appear that it mattered not what might be the occasion of this accident of parturition, the earlier it was detected and the more promptly it was rectified, the less the danger to our patient, the greater the subsequent satisfaction to ourselves.

Dr. Greenhalgh felt much indebted to Dr. Eastlake for calling the attention of the Society to the management of the third stage of labour, the proper treatment of which, he had reason to fear, was much neglected. He quite agreed with the author, that although most practitioners chiefly engaged in the practice of

midwifery are fully aware of the importance of preventing the too rapid birth of the child, and of making pressure over the uterus during and for some time after its expulsion, yet it was a rule not alluded to in books, and comparatively rarely acted upon in practice, the neglect of which led to many of those difficulties met with in the removal of the placenta. He was of the author's opinion, that adherent placenta was of very rare occurrence; but that its retention from the so-called hour-glass, irregular, or spasmodic contraction, happened every now and then. He (Dr. Greenhalgh) did not approve of letting blood out of the funis, on the ground that the uterus did not contract so efficiently upon a lax as on a firm substance, and that, in event of artificial detachment being required the ill-defined boundaries of the placenta would greatly complicate the case. He had never experienced any material difficulty in removing a detached placenta from the cavity of the uterus or vagina where early had recourse to. He confirmed the experience of the author, that the same uterine contraction which caused the expulsion of the child frequently detached the placenta. As a rule, he should not feel inclined to delay the extraction of the placenta beyond the half hour, unless the labour had been very lingering, the uterus in a state of inertia, or the patient much prostrated, when he might be induced to wait an hour. In hæmorrhage, convulsions, inversion, &c., it might be necessary to proceed to the immediate removal of the placenta. Dr. Greenhalgh then drew attention to a case of placenta prævia, in which so great had been the loss of blood that the introduction of the hand in performing version, and subsequently for the extraction of the placenta, occasioned the most severe convulsions, in one of which the patient died. He strongly deprecated powerful traction on the funis, which might lead to irregular action or inversion of the uterus, laceration of the funis or placenta, &c. A considerable experience had convinced him that chloroform had not the slightest influence in delaying the expulsion of the placenta; on the contrary, its anæsthetic effects greatly aided the practitioner in making firm pressure over the uterus, and thus facilitating its extraction. He had never met with a case of supplemental placenta. In conclusion, he thanked the author for directing his attention to the difference in the uterine souffle before and after the death of the fœtus *in utero*, of which, he stated, he had no experience.

Dr. Eastlake, in reply, said that he had listened with great interest to the remarks made by Dr. Greenhalgh. In answer to Dr. Palfrey, he said that gentleman had misunderstood that portion of the paper which referred to the time that should be allowed to elapse before extracting the afterbirth. An hour was the maximum period that he (Dr. Eastlake) would wait in any case of retention, and then only where a doubt existed as to the cause: but in the majority of instances the placenta might be

removed within a quarter of an hour. He had had the pleasure of meeting Dr. Graily Hewitt at a case two nights ago, and he felt sure that that. gentleman could testify to the ease with which he (Dr. Eastlake) had pressed off the placenta on that occasion.

Dr. Graily Hewitt could corroborate Dr. Eastlake's statement as to the effect of the pressure over the fundus uteri, unaided by traction on the cord, in expelling the placenta, having very recently witnessed it, in the case to which he was called by Dr. Eastlake. He had himself been in the habit of depending chiefly on pressure on the uterus for expulsion of the placenta, although he also held the cord just tightly enough to ascertain where the placenta was and how it was moving. He believed Dr. Eastlake's paper would have good effect in more widely inculcating a practice which he believed to be good. With reference to the effect of direct pressure on the uterus in procuring expulsion of the placenta, he had observed an interesting fact: in one case, where pressure had been used for nearly an hour unavailingly, the uterus suddenly and forcibly expelled the placenta when the organ was grasped, one hand at each side, just at the junction of the Fallopian tubes with the body of the uterus. It appeared in this case, at all events, that this part of the uterus was more susceptible than others. Possibly this fact might have an application in other cases.

December 7th, 1864.

Dr. Oldham, President, in the Chair.

Present—57 Fellows and 11 Visitors.

Prof. Pajot, of Paris, Prof. Hecker, of Munich, and Dr. Marion Sims, of Paris, were elected Foreign Honorary Fellows. Dr. J. B. Potter and Mr. G. H. C. Cooper were elected ordinary Fellows.

Mr. Gayton presented to the Society a pair of Forceps with a spring-racket attached to the handles, as made at his suggestion, and employed by himself on many occasions without a stillbirth.

Dr. Barnes exhibited a Piliferous Cyst of the Ovary.

A CASE OF COMPLETE EXTIRPATION OF THE UTERUS AND OVARIES WITH LARGE FIBROUS TUMOURS.

By I. Baker Brown, F.R.C.S.,

SENIOR SURGEON TO THE LONDON SURGICAL HOME FOR DISEASES OF WOMEN, ETC., ETC.

A. R—, æt 49, single, was admitted into the London Surgical Home on October 18th, 1864. She was sent to me by Dr. White, of Londonderry, who kindly favoured me with the following history:—"Miss R— has a large tumour of nine years' standing. It commenced on the left side, and when first observed was about the size of a goose's

egg. For three or four years it made slow progress and appeared to be kept in check by treatment. When I first examined it, three and a half years since, it extended across the abdomen and from ribs to pubes, measuring twelve inches in length by ten in breadth, was movable, generally hard, but in some parts soft, yielding, and lobulated; catamenia regular. For a considerable time it remained stationary, but during the last twelve months has increased much more rapidly."

When Dr. White placed her under my care the whole abdomen was filled with a large tumour, regular in its outline, very movable, elastic to the touch, and in parts giving somewhat the feeling of obscure fluctuation. It appeared that the growth during the last few months had been very rapid. In last March she fell down from sudden pain caused by the rolling of the tumour, and since then has been seldom free from suffering. She has had two attacks of peritonitis within a short period, each apparently excited by the rolling of the tumour. Latterly also the catamenia has been profuse, and a discharge of blood from the vagina is now excited by very slight causes, even by mental emotion. The general health has within the last couple of months suffered severely, and she is much wasted, especially about the neck and shoulders. The expression of the face is very anxious and worn.

Upon examining the abdomen I found a large tumour, which was very movable, and deeper down another mass, fitting the pelvis, and much more lobulated to the touch than the movable mass. Movements of the one portion did not appear to affect the other. The os uteri was drawn high up in the vagina, and was somewhat difficult to reach from its situation behind the pubes. With some difficulty a sound was introduced and passed some distance into the uterine cavity. This uterine mass was very firmly fixed in the pelvis, and interfered considerably with the functions of the rectum and bladder. I punctured the movable portion of the tumour with an exploring needle, but could not obtain any fluid.

Soon after her admission into the "Home" she had a sharp attack of pain in the abdomen, constant sickness, and all other symptoms of peritonitis. This was subdued by local applications of turpentine, linseed-meal poultices, and other appropriate treatment. After this attack the stomach remained very irritable, and the loss of rest at night was very distressing.

After due and careful examination, I and my colleagues arrived at the conclusion that it was probably a case of fibroid tumour of the uterus with a large outgrowth. Its recent very rapid increase was beginning to most materially exhaust the system. The interference with the functions of the rectum and bladder, with the process of digestion, and the irritable exhaustion produced by the loss of sleep, rendered it necessary that, if possible, some active means of relief should be at once adopted in order to afford her even a possibility of recovery.

It might be observed that she had had a large umbilical hernia, which now contained nothing but fluid.

The whole of the various aspects of the case having been fairly considered, its grave dangers fully weighed, and the patient herself, after full consultation with her friends, being urgently desirous of undergoing any operation which might offer even a remote chance of alleviating her constant sufferings, I determined to operate; in this step my colleagues fully concurred. The plan I intended to pursue was to open the abdomen and expose the tumour, and, in case I found it feasible, remove the large movable portion; then to be guided by the state in which the uterine mass was found as to whether I should remove the entire uterus, with its appendages, or suffer it to remain. From the state of uncertainty which existed as to the connection of the whole mass, I further stipulated that I might, if I considered it necessary, not remove any portion of the mass, but merely close the abdominal opening again, thus making merely an exploratory incision.

On November 9th, 1864, I proceeded to operate. The patient was brought well under the influence of chloroform

and then placed upon the table. I made an incision in the middle line of the abdomen of about four inches in length, and having its lower extremity close to the hernial sac, which protruded through the navel; gradually cutting the parietes, I opened the abdominal cavity and exposed the tumour. On passing my hand around it I found that no adhesions were present; I therefore continued my incision on the left side of the umbilicus to within a couple of inches of the pubes. The whole of the movable fibroid mass was thus exposed, and found to be attached to the uterine mass by a short pedicle, about three inches in circumference; I therefore, with careful manipulation, lifted it outside the abdominal cavity. The ecraseur was applied around the pedicle, which was very gradually and quietly cut through. Notwithstanding the slowness with which this was done, at the moment of separation there was a perfect gush of blood from the divided surface; it flowed, not apparently from vessels, but from sinuses the size of a finger. This could only be arrested by passing three silver-wire sutures deeply through the sides of the divided surface, and drawing them tightly together; this arrested the hæmorrhage sufficiently to allow a more careful examination of the remaining mass to be made. It was found that the uterus was filled with a fibrous mass the size of a child's head, and having growing to its posterior walls two other independent tumours, each the size of a fist. Further, each ovary was a mass of cystic development the size of a goose's egg, and intimately adherent to the uterine fibroid mass; the broad ligaments were also filled with dropsical effusion. Taking into consideration this state, the size of the uterine fibroid mass, the difficulty which would occur in permanently arresting the bleeding from the divided neck of the first-removed tumour, and the probability of pyæmia ensuing, I determined, with the sanction of my colleagues, to remove the whole mass, with the uterus and ovaries. I therefore separated the left broad ligament, and having pierced it with a long needle covered with Indian hemp twine, I tied it and divided it. I then treated the right

ligament in the same way. I now introduced a catheter into the bladder, to exactly determine its true connection with the mass, and a sound into the vagina; then, lifting the mass so far as I could out of the pelvis, I ascertained the exact position of the os uteri. I then pierced the cervix about an inch above the os, and passing a strong double ligature, tied each half separately, and placed another ligature around the whole. I cut away the mass and removed it. There was no hæmorrhage from this surface. Bleeding was now observed to be taking place, and upon examination it was found that the ligature which had been passed over the left broad ligament had slipped; I therefore took up the cut surface with the vulsellum forceps, and tied a fresh ligature around the whole, as I believed. The abdominal cavity was then carefully sponged out and all blood removed. The bleeding had been stayed, and no further hæmorrhage occurring, I proceeded to close the abdominal incision with silver-wire sutures. As the umbilical hernial sac interfered with the equal approximation of the edges, I removed it, and thus was enabled to close the incision perfectly and evenly. The various ligatures were brought through the lower end of the incision; a bandage was carefully applied, and the patient removed to bed. The operation occupied an hour and a quarter. Upon examination the tumour first removed was found to weigh fifteen pounds, and the uterine mass another six and a half pounds, making a total weight of twenty-one and a half pounds. They were composed of true fibroid tissue, and presented nothing peculiar. The ovaries were both a mass of cyst development of various sizes and different stages of growth, and were so closely adherent to the uterine mass that it was most difficult to separate the two.

She soon rallied from the effects of the chloroform, and became calm and cheerful. The pulse at 9 p.m. was only 80, the tongue and skin moist, and she had had a quiet sleep. At 3 a.m. of the 10th she had a severe attack of vomiting, suddenly became pale and collapsed, and died in half an hour.

The post-mortem, a few hours afterwards, showed us a large mass of coagulated blood in the left iliac fossa, with a quantity of serous fluid in the cavity of the abdomen. A further examination proved that this had escaped from the left broad ligament, from which the ligature had slipped during the operation. It appeared that the second ligature which had been applied had not included the whole of the divided surface. The uterine mass had been divided in the situation I had intended, viz., on a place about an inch above the os uteri, and the ligatures there were properly tied. The organs of the body generally presented nothing remarkable.

The fatal result in this case is truly unfortunate, as I have no doubt that had it not been for the slipping of the ligature on the left broad ligament the patient would have done well. Should I meet with another case in which the operation was advisable I should either divide the broad ligaments with the actual cautery, or apply a double ligature by piercing the ligament and thus render it impossible to slip.

DESCRIPTION OF PLATE IX.

a a. Points of separation of the large fibrous mass from the fundus uteri.
b. Ligature on broad ligament behind the smaller fibrous growths.
c. Ligature round cervix uteri.
d. Anterior surface of uterus.
e e e. Fibrous growths, of which the two smaller ones occupied the pelvis.

Dr. Graily Hewitt exhibited Dr. Marion Sims's Modification of Chassaignac's Ecraseur, which did not arrive in time for the last meeting.

ON PUERPERAL EMBOLISM.

By Willoughby Francis Wade,
PHYSICIAN TO THE GENERAL HOSPITAL, BIRMINGHAM.

(Communicated by Dr. Graily Hewitt.)

It is always gratifying to meet with new theoretical and scientific views which admit of application in the actual practice of our profession. We feel then that medicine is a really progressive science, a point which it is sometimes difficult to realise.

Our satisfaction reaches its highest pitch when the new knowledge enables us to cure a disease previously beyond our control. This gratifies both our humanity and our vanity at the same time.

On the other hand, we are, perhaps, apt to feel, if not to say, "What use in adding another to the list of necessarily fatal diseases?" To this question I can only answer that I believe the advances of medicine during the last half century have conferred almost as much benefit upon the subjects of those diseases which we are confessedly impotent to combat as upon the subjects of those others which we are able to treat *citius, tutius, et jucundius*, than our predecessors.

Though we cannot cure incurable disorders, yet when we know them to be so we address ourselves more undividedly to their relief; we abstain from those useless efforts which in our ignorance we should make to cure them. And what is of most importance, we devote ourselves more strenuously to their prevention, which may be within our power, though their cure is beyond it.

The subject of this paper illustrates these remarks in a very forcible manner, and it therefore seemed to me that it might not be unworthy of the consideration of the Obstetrical Society this evening, the more especially as the views of Virchow upon this subject are not yet so familiar to, or

so unreservedly admitted by, many members of the profession as their importance and truthfulness seem to me to demand that they should be.

As the diagnosis of the case which I shall presently relate was based upon these views, it may not be out of place briefly to recapitulate them.

Virchow's doctrines, then, respecting the formation of clots in the venous system (thrombosis), are briefly as follows:

When clots are found in the pulmonary artery of so long a duration before death as to have preceded or to be independent of any alterations in the parenchyma of the lungs, these clots have been formed originally in some portion of the circulating system below the lungs—that is, either in the systemic veins or in the right side of the heart. Each time that Virchow has found clots in the pulmonary artery he has found them also in the veins, *except* when they obviously depended upon disease of the parenchyma of the lungs. Of 76 autopsies made during one year at the Berlin Hospital, 18 showed clots in the veins and 11 clots in the pulmonary artery.

The coagula, when recent, fill the artery without adhering to its walls; afterwards adhesion takes place, but in neither case is the lining membrane diseased. The clots are generally found near a bifurcation, and not infrequently astride the tongue which separates two branches at their point of divergence.

A venous clot extends itself, not merely up to the junction of the next succeeding vein which remains pervious, but also a little beyond this point, so as to present a little floating tongue to the action of the current of blood flowing through the patent vein. This "appendix of the clot" it is which, being detached by the force of the blood-current, is carried by the blood into the right heart, and thence into the pulmonary artery.

That there is no physical impossibility in this transportation (emboly or embolism), Virchow has proved by experiment. Fragments of coagula, of other animal substances, of caoutchouc, &c., half an inch long and a quarter of an

inch thick, introduced into the subclavian vein, *always* found their way into the pulmonary artery, and *never* remained in the right heart. This is very important. The actual proof that clots in the pulmonary artery not only might be, but actually are, produced by emboly are fourfold :

1. The soundness of the coats of the artery, and the co-existence of phlebitic coagula elsewhere.

2. The length of the "appendix." Virchow has found that in the same part of the venous system the length of the "appendix" is uniform, *e. g.* the "appendix of a clot" formed in the common iliac vein always extends up to the renal vein ; consequently, should this not be the case, we are justified in assuming that a portion of the clot has been detached.

3. The point of the "appendix," looking heartwards, should be smooth, rounded, and uniform ; if a portion has been detached the point will be jagged, rough, or irregular.

4. Fragments may be found at a distance from the primitive coagulum, which, from the shape of their ends, may be recognised as having originally belonged to it.

The results to the lungs (in Virchow's experiments) varied according to the substance introduced into the subclavian vein. Caoutchouc produced only obliteration of the pulmonary artery, without any disease of the lung substance. Animal substances caused pneumonia, terminating in purulent infiltration.

Virchow divides the cases observed in the human subject into three classes :

1. Obliteration of a large pulmonary trunk, followed by sudden embarrassment of the respiration.

2. Less considerable obliteration, unattended by either local or general signs.

3. Limited pulmonary lesions as a consequence of the obliterations. These consisted of—

α Pulmonary atrophy in one instance ;

β Pneumonia not infrequently ; and

γ Gangrene, not primary, but resulting from antecedent pneumonia.

Pulmonary apoplexy has never been ascertained to occur in these cases. In one instance the lungs were found much distended with air, in others somewhat congested or very œdematous. In all these cases there was obstruction of a large trunk of the pulmonary artery.

The subjoined case is interesting in connection with Virchow's views upon the question of thrombosis and emboly. It is also of special interest to obstetricians, because phlebitis, of which obstruction of the pulmonary artery is one of the consequences, is peculiarly liable to be set up in puerperal women. The fact that I only saw the patient once during life must be my excuse for the particulars of the case being not more detailed than they are.

Case.—A married woman, æt. 24, was delivered of her first child on the 17th of October, 1857, after a lingering labour.

On the 25th both breasts became inflamed, and soon suppurated, and on the 5th of November her right leg swelled, without much pain and without any rigor.

On the 7th, whilst walking up a steep flight of stairs to her bedroom, she was suddenly seized with dyspnœa, which rapidly became extreme, and was attended with a sense of impending dissolution. She then sent for Mr. Robins, who had not previously attended her. On examining the chest he found over the entire posterior part preternatural resonance on percussion, and puerile respiration, nothing else abnormal; the state of the breasts prevented very accurate examination of the front chest, but there was no reason for presuming that it differed from the back part. No abnormal cardiac sounds. The pulse was feeble, the skin cold and clammy, very little cough, no expectoration, no complaint of pain, but the dyspnœa most harassing. Not being able to find any adequate explanation of the dyspnœa, Mr. Robins asked me to see the patient in consultation on the 12th of November. I found the preceding account of the phenomena given to me by Mr. Robins, perfectly accurate. The chest moved fully at each respiratory effort; there was a single loud sonorous rhonchus to be heard in the right

side, but after a little forced coughing this disappeared. The heart-sounds were free from murmur; its beat, and that of the arteries, were irregular in rhythm and force. Her general condition was pretty much as before described, but the nose, tongue, and breath, were cold. The tongue was perfectly clean, pale, and moist. The urine was rather scanty, and loaded with albumen. A semi-reclined dorsal decubitus was most agreeable. She had a sallow, dingy appearance, but no livor or venous distension about the face, neck, or arms. The left thigh and leg were swollen and white; very little tenderness in the line of the vein.

I diagnosed a clot in the pulmonary artery.

She lingered in much the same state for ten days more. The pulmonary signs remained unaltered till four days before death, after which date the lungs were not examined posteriorly in consequence of her exhausted condition. Two days before death the right thigh and leg became swollen, without pain or rigors.

The treatment adopted was a mildly stimulant one.

The post-mortem examination was made after the lapse of twenty-four hours, the weather being cool. The right side of the heart was moderately distended with a currant-jelly coagulum. The pulmonary artery was occupied from its commencement by a very dense, firm, whitish clot, similar to that which lines an old aneurismal sac. This was firmly adherent to the artery all round, and, when peeled off, left the lining membrane pale and to all appearance perfectly healthy. The coagulum was perforated by a small, irregular, tortuous channel. The clot extended to the third or fourth division of the artery, filling the calibre less completely as it advanced.

The left side of the heart was nearly empty. The lungs were pale and full of air; no emphysema. Isolated patches of pneumonia, slightly infiltrated with pus, each about an inch in diameter, were found on the posterior surface of each lung, not extending deeply into their structure. The central portion of the lungs quite healthy; no œdema or pulmonary apoplexy.

Both iliac veins were inflamed and contained clots, that

in the right one being evidently of more recent date than the other. Unfortunately (the examination having to be made rather hurriedly) we omitted to ascertain the exact upper limit of these clots. The kidneys were of a natural size, but congested and mottled.

The elements of the diagnosis in this case are very evident when the symptoms and signs are read by the light of Virchow's doctrines. A patient suffering from phlegmasia dolens was seized whilst going up stairs with sudden and terrible dyspnœa, which was not explained by a careful exploration of the lungs.

It is true that disease of the central portions of the lungs may at its outset fail to present any physical signs of its existence, from the fact that between us and it there is interposed a layer of healthy lung-tissue. I have several times seen persons suffering from heart disease in whom, from their symptoms, I have suspected the existence of pulmonary apoplexy for several days before it had approached sufficiently near the surface to make itself audible. The same may be true of a central pneumonia; but if such great dyspnœa as existed in this case were due to pneumonia, I should certainly expect to hear bronchial breathing at the end of expiration, since a bronchial expiration is more prolonged than a normal expiratory murmur, and would consequently become audible when it had ceased. Furthermore, there was an absence of any symptoms of pneumonia in this case. It seemed, therefore, justifiable to arrive at the conclusion that the dyspnœa was not caused by any interference with the access of *air* to the lungs. I could therefore only attribute it to the other sole cause of dyspnœa, namely, impediment to the access of *blood* to the lungs.

Dyspnœa depends upon an absence of the mutual interchanges between the air and the blood in the pulmonary cells, and may therefore depend upon the non-access of either. The absence of air is practically so much more frequently the cause of dyspnœa than the absence of blood that we are apt to ignore the latter cause altogether.

The whole history of the case supported this view of the etiology of the dyspnœa; the pre-existence of the phlegmasia, the suddenness of the dyspnœa, its commencement under circumstances which were eminently caculated to favour the dislocation of venous clot, the feeble fluttering pulse, the coldness of the breath and tongue, the increased sonoriety of the lungs on percussion, the puerile respiration, were all perfectly consonant with the hypothesis that a venous clot had been detached and lodged by the circulation in the pulmonary artery. The small superficial patches of pneumonia, exactly like those which I have seen on dissecting cases of pyæmia, lend countenance to that view of purulent infection which refers it to the lodgment of small phlebitic clots in the capillary or minute vessels. Nothing is more likely than that the blood, flowing through the irregular and tortuous canal formed in the centre of the clot, should detach small portions of this clot and carry them as far as the size of the vessels would allow them to float. They did not probably commence to exist earlier than four days before death.

Whatever may be thought of this explanation of their origin, the time of their development and their insignificant size, especially taken in conjunction with the healthy, uncongested, and pervious state of the rest of the lungs, forbid us to suppose that they were the cause of the dyspnœa in the first instance. The most important practical conclusion we can draw from this case is the prime necessity of keeping patients suffering from phlegmasia dolens carefully and rigidly in the recumbent position. The painfulness of the disease will commonly enable us to do so without much difficulty; in this case there was but little pain, had there been more her life would probably have been spared.

Denman says that he had seen one fatal case of phlegmasia dolens, and heard of several others, and seems to attribute the result to some extraordinary exertions which the patients were urged to make, for they sank either under some great effort or immediately after. We have now no difficulty in understanding how this could be.

We have no data for determining the fatality of cases of clot in the pulmonary artery; but if a patient can live for more than two weeks with so great an obstruction, surely with a less degree she might survive long enough to allow the clot to be removed by disintegration, which we should endeavour to favour by the use of remedies calculated to produce that result. The researches of Dr. Richardson afford us some, but not conclusive ground, for thinking that the carbonate of ammonia is such an agent.

Nature certainly removes, probably by disintegration, the primary venous clot, and we may assume that the secondary one is also capable of removal in like manner. The experience of ordinary cases of phlegmasia dolens teaches us that pyæmia is not a necessary result of this disintegration, even if we allow that it is an occasional one.

I must again repeat, in conclusion, that the knowledge which we have acquired during the last few years upon this subject is especially valuable in furnishing us with means of prevention, which is proverbially better than cure.

Dr. Greenhalgh stated that cases of fatal embolism after parturition were rare. He had met with but one case in his own practice. It occurred in a very healthy young lady, who had been confined of her first child. She had had a perfectly normal labour, not followed by hæmorrhage or any untoward circumstance beyond some acceleration of the pulse on the third day after delivery. She was suddenly seized during the evening of the sixth day after her confinement with severe dyspnœa, acute agony in the cardiac region, and intense mental excitement, speedily followed by alarming prostration and death in less than three hours. No post-mortem was made.

Dr. Ballard asked if there had been any febrile disturbance in Dr. Greenhalgh's case.

Dr. Barnes observed that the history of this case and of others, in which embolism followed upon phlegmasia dolens, had an important bearing upon treatment. Thus, it was usual, after the subsidence of the acute symptoms of phlegmasia dolens, to rub the affected limb, with the view of promoting absorption and supplying passive exercise to the muscles and other tissues. It might be that this friction would favour the detachment of a clot from the femoral vein, which being thrown into the circulation

would constitute "embolism." This danger should be borne in mind. He thought the connection between a febrile state and clotting or thrombosis, suggested by the question of Dr. Ballard, was very frequent. He believed in most cases of phlegmasia dolens there was a pre-existent abnormal state of the blood which predisposed to coagulation. He (Dr. Barnes) had gathered up in his memoir on "Thrombosis and Embolia," published in the Society's 'Transactions,' vol. iv, most of the information at that time extant upon the subject. Since then, however, information had been considerably enlarged by the publication of new cases.

AN INQUIRY INTO THE BEST MODE OF DELIVERING THE FŒTAL HEAD AFTER PERFORATION.

By J. Braxton Hicks, M.D., F.R.S.,

ONE OF THE LECTURERS ON MIDWIFERY AND ASSISTANT-ACCOUCHEUR-PHYSICIAN AT GUY'S HOSPITAL; PHYSICIAN TO ROYAL MATERNITY CHARITY, ETC., ETC.

Notwithstanding that the adoption of the induction of premature labour and the employment of podalic presentation in cases of diminution of the diameter of parturient passages have much diminished the necessity for perforation, still, from one cause or another, cases will from time to time arise in the practice of every one, in which it will be imperative to open the fœtal head; and also some will occur in which, though not absolutely so, yet, from the fact of the child being dead, lessening the head will be the simplest mode of delivery. To those who are engaged largely in the practice of midwifery these cases are not infrequent; and, indeed, it will by no means rarely happen that, after perforation has been adopted, considerable, if not insuperable, difficulty will be found in extracting the head with the crotchet or craniotomy forceps.

I need, therefore, scarcely apologise for bringing before the Society the results of an inquiry into the best mode of delivering the head under these circumstances; and although,

to a certain extent, I must admit I am treading on not unbroken ground, still, as the subject has not been so fully gone into as it deserves, I hope I shall be able to develop some new points which will serve to improve our practice, and which will place the operation upon a more satisfactory basis.

The question itself may be put more practically before us thus—In a given case of severe distortion of the pelvis is it necessary to perform Cæsarean section?

This can only be answered by first disposing of the question—What is the smallest antero-posterior diameter of the pelvis through which the head can be brought by any means in our power?

Upon this a third then arises—What is the mode of reducing the measurements of the fœtal head, and of altering the relations of the now altered diameters so as to produce the least obstruction? This latter inquiry seems of late to have been much overlooked. As a scientific question, I believe there are only two authors who have reduced it to experiment, namely, Dr. Burns and Dr. Hull, the latter of whom, in his 'Defence of the Cæsarean Section,' gives an account of some experiments made by himself in order to disprove the assertion of Dr. W. Osborn (upon the celebrated case of Elizabeth Sherwood), that a fœtus could be drawn down through a pelvic brim whose conjugate diameter is an inch and a half.

The violent controversy that sprung from this assertion, headed by Drs. Hamilton and Hull, it must be acknowledged by all, was a disgrace to our profession, and it tended, no doubt, as all such violent personalities generally do, to mask the essence of the point under discussion. Thus, some valuable facts were lost sight of, and fair argument on them was prevented.

Doubtless Dr. Osborn was too hasty in his assertion that in any case he could deliver with the crotchet where the conjugate diameter was of the size above mentioned, and possibly he might not have been accurately correct in his estimate of the measurements of the pelvis of E. Sherwood,

a point always open to some error in the living; but it is a curious circumstance that Dr. Hull, in his very attempts to prove Dr. Osborn false, made some very practical experiments which went very far to substantiate Dr. Osborn's assertion, and they showed that it *was* possible to get the mutilated head through a very small space when tilted *sideways*.

The state of mind in which these experiments were undertaken, and the object for which they were designed, prevented any material advantage being gained by midwifery; the roads they opened up were not fully followed to their goal, and thus the question as to the best mode of delivery was not answered at that time, so as to be embodied in the general knowledge of the obstetric art.

The only author, besides Hull, who has gone experimentally into the subject is Burns. The rest of obstetric authors, in alluding to the use of the crotchet and craniotomy forceps, have not clearly discussed the best mode of delivering the head after perforation.

I do not mean to affirm that the use of the crotchet is not generally alluded to, and directions given to change its position on the head in case of its failing to pull it down in one way or in another; yet there has been no instruction as to the principles by which we should be guided in that traction, with reference to the altered relations of the mutilated head, except in very general terms.

Dr. Burns, however, seems to have reflected upon and put to the test of experiments the hints thrown out by Drs. Osborn and Hull. His remarks upon the point so entirely coincide with the results of my experiments that, in respect of the altering the position of the head after perforating, and after the removal of part of the calvarium in extreme cases, I cannot do better than quote them:—"But it sometimes happens that the pelvis is sometimes so small as to require the head to be broken down, and nothing be left but the base of the skull. If the child be recently dead the bones adhere pretty firmly, and in a contracted space it will require some management to bring them away. But if the parts

have became somewhat putrid, or long dead, the parietal and squamous bones come easily away, and the frontal bones separate from the face and bring their obitar processes with them. We have then only the face and basis of skull left. I have carefully measured these parts, placed in different ways, and I entirely agree with Dr. Hull, a practitioner of great judgment and ability, that the smallest diameter offered is that which extends from the root of the nose to the chin. For in my experiments, after the frontal bones were completely removed, this did not in general exceed an inch and a half. It is therefore of great advantage to convert the case into a face presentation, with the root of the nose directed to the pubis . . . but I would conclude that whenever the pelvis, with the soft parts, measures fully an inch and three quarters—or if the head be unusually small, the child not being at the full time, an inch and a half—the crotchet may be employed, provided the lateral diameter of the aperture in the pelvis be three inches, or within a fraction of that, perhaps two and three quarter inches, if the head be very soft." "In this manner of operating, the face is drawn down first, and the back part of the occipital bone is thrown flat upon the neck, like a tippet. If we reverse this procedure, and bring the occiput first and face last, fixing the instrument in the foramen magnum, then, as we have the chin thrown down on the throat, we must have both the neck and face passing at once, or a body equal to two and three quarter inches. If, on the other hand, we fix the instrument on the petrous bone, which is certainly preferable to the foramen magnum, and bring the head sideways, we must have both that bone and the vertebræ passing at once, or a substance equal to two and a half inches in diameter; and if the head pass more obliquely, then it is evident that the size must be a little more. Although, therefore, Dr. Osborn be correct in saying that the base of the cranium turned sideways does not measure more than an inch and a half, yet we must not forget that, when the opposite side comes to pass, the neck passes with it, which increases the size."

It is a curious fact that Burns was the only author who clearly saw the true bearing of the whole subject of the dispute between Osborn and others.

Dr. Davis, who paid much attention to the improvement of the crotchet, appears to make no mention of the matter; and even in his description of the "osteotomist" he does not give any directions how to draw down, but rather directs to the total removal of, the head, by bringing it away piecemeal.

Dr. Denman, writing after Osborn, even with knowledge of his works, and being present at the case which was the text to Osborn's remarks, after advising in cases of moderate difficulty to pull down the perforated head in the original position, says (p. 172, vol. ii, 4th edit.), "In a case of very great difficulty it is, however, possible that all the bones of the cranium might be brought away successively, and nothing remain of the head but the basis of the skull with integuments. In such a case it has happened, quite unexpectedly, that I have succeeded in bringing down the remainder of the head merely by grasping the integuments firmly in a mass, or even in distinct parts, and pulling down in a proper direction. But if these should be found insufficient, the crotchet is to be introduced again, and *fixed upon the basis of the skull on any part where we can get a firm hold,* and this, assuming a more convenient direction, will be more readily brought down. *I have not found, in cases of this kind, that I have acted from a preference for fixing the instrument in this or that part or in this or that manner;* but giving myself time to reflect, the exigence of the case has dictated what I ought to do, so that I am not solicitous about any particular method. Some have thought that it was of great importance to fix the crotchet on the outside of the head, and others have insisted on the propriety and superior advantages of affixing it on the inside; *but I am persuaded that such things are of little consequence,* and that in the course of a difficult operation it may be found necessary and useful to fix it in either way."

This is very explicit, and Denman evidently repudiates any advantage from any particular manner or direction in employing traction.

Smellie (see edition of 1784, chap. 3, sect. vii, p. 219), after describing the introduction of the crotchet into the opening, as is generally advised, says, "If it does not soon answer the purpose, I introduce my fingers, as above, further, and slide the point up along the outside above the under jaw, and have succeeded several times with this instrument, except when the pelvis was so narrow as to require a greater force, when we must use others." But shortly after he particularly says, in approving the passing the tractor *outside*, "that the head never comes down in a flattened form, but the vertex is protruded in a narrow point, and the whole squeezed into a longish form." After this he says, if it does not then descend, he places a crotchet on each side of the head, and then pulls to the utmost of his strength, so that sometimes he has been scarcely able to move his fingers or arms for many hours after. Hence it appears he pulled directly down on the axis, the direction of the head relatively to the brim being unchanged.

Merriman ('Synopsis of Cases of Difficult Parturition') says nothing beyond alluding to the fact that Dr. Osborn has investigated into the best method of procedure in cases of distorted pelvis.

Dr. Churchill ('Midwifery,' 1860, p. 369) alludes to Dr. Osborn's investigations, and, after quoting the opinion of various authors as to diameter of the pelvis through which it is possible to draw a child, says, "I would not venture to have recourse to craniotomy unless the antero-posterior diameter was fully two inches." He, however, does not mention the mode Osborn adopted and recommended, which is an essential point of his argument, and dwelt on by him particularly. He says, "In some cases the distortion of the pelvis is too considerable to admit the passage of the

head even when emptied of its contents, or the obstruction may result from the ossification of the bones of the skull; in either case an extension of the operation is necessary to complete the delivery. This may be effected by breaking up the cranium with a small pair of forceps, resembling Dr. Davis's, or by the cephalotribe."

Dr. Ramsbotham ('Obst. Med. and Surgery') gives no special direction as to the part of the fœtal skull to which the crotchet is applied, either externally or internally, nor makes any mention as to the altering the position of the mutilated skull during the traction. In one part he says, "the small blunt hook may be fixed in the foramen magnum or behind an orbit" (op. cit., 306).

Dr. Bland ('Observations on Human and Comparative Anatomy,' pp. 213—223), in reviewing Dr. Osborn's work on the case of E. Sherwood, after alluding to the incompressibility of the base of the skull, says, "This the author (Dr. Osborn) seems to be aware of, and therefore says that by removing the parietal bones we shall be enabled the easier to reach the basis of the skull and turn it edgeways, and thus with greater facility to bring it through the contracted strait of the pelvis." But he denies that Osborn did this intentionally, but that it was the result of employing only one instrument in drawing the head down. After discussing the best mode of applying the crotchet, whether inside or out, he recommends it to be applied externally, against the advice of Osborn, and continues, "Besides, he seems to think that it is only by fixing the crotchet withinside the head that we shall be enabled with it to turn the basis of the skull and bring it down edgeways." Again, "I have generally thought it proper to leave it to the discretion of the operator to apply the hook or crotchet within or on the outside of the skull, wherever he could get the firmest hold; but in this it seems I have been mistaken, and Dr. Denman has incurred the censure of our author for maintaining a similar doctrine." Hence it is evident he was fully aware of the bringing the skull aslant, but has no

particular preference on the matter, and rather stiffly criticises Osborn's having one.

Dr. Murphy ('Lectures on Parturition') quotes Dr. Osborn's case rather fully, "because it accurately describes an operation with the crotchet different from what we have described—one by which the vault of the cranium is quite broken up and removed, and the base of the skull is drawn obliquely through the contracted brim of the pelvis, the crotchet being fixed in the foramen magnum." Beyond this I find no allusion to the position where it is best to place the crotchet, nor to the subject of the present paper.

Dr. Hamilton ('Letters to Dr. Osborn') thinks it a very difficult thing to deliver the head as Osborn stated he had done. In detailing an experiment with the drawing of a dead fœtus and an artificial pelvis, he makes the following remarks:—"Let the cranium be broken down as much as can be done in real practice, and then, by means of a crotchet *fixed in the foramen magnum*, let it be tried whether it be possible to extract it." Again, in another place, he remarks, when the base of the skull is turned *sideways*, "the neck must add somewhat to the volume of the head." Thus, he was only considering the mode recommended by Osborn, namely, fixing the head in the foramen magnum and tilting it *sideways*.

In the commencement of this paper I alluded to Dr. Hull; I shall now notice the experiments he made in the mode of delivering by embryotomy. In defending Cæsarean section from the conclusions of Dr. Osborn, who considered that his case of Elizabeth Sherwood had shown that the crotchet was equal to delivery under any circumstances, he made a series of experiments to prove Dr. Osborn's statements incorrect. He made in several boards, an inch thick, a series of apertures of the form and size of the brim of several very deformed pelves, whose measurements are given by him. Three of these were produced by malacosteum, three by rickets. Among the latter the pelvis of Elizabeth Sherwood, after the size of Dr. Osborn himself.

He then produced a fœtus of moderate size, from which he removed the parietal and frontal bones down to the base of the cranium, and bent the occipital bone a little behind the foramen magnum, so that it would either lie back on the neck or forwards upon the base of the cranium. Thus reduced, it measured from the chin to top of nose, at its smallest, an inch and a half, and nearly a quarter inch more from chin to top of orbits; from the external canthus of one orbit to that of the other two and a quarter inches; the same from one zygomatic arch to the other; from the top of the nose to the posterior part of the condyles of the occipital bone three and a quarter inches. He then remarks, "When these different dimensions are attentively considered it will appear to every one that the most favorable position in which the head so reduced can be applied to a small aperture, with a view of dragging it through with a crotchet, is *endwise,* with the chin to the sacrum or to the os pubis; not occiput foremost, because in this case the volume of the face must be added to that of the neck; nor sideways, as Osborn states he placed it in the case of Elizabeth Sherwood."

These remarks are very important, and I believe, with the exception of Dr. Burns, no other English author has so clearly pointed out this fact, although, doubtless, it must have struck many minds before and since, the point being palpable on the slightest consideration.

He then with the crochet endeavoured to draw this mutilated head through these apertures, trying sideways and then endways; the crotchet sometimes fixed in the foramen magnum or in the sella turcica; sometimes with the chin to pubis, sometimes to sacrum. But in all these trials he found it impossible to draw it through *sideways,* and with only great force endways in some instances, and in one or two without much difficulty; and concludes that it would not be possible to draw a child through a pelvis having the diameter of Elizabeth Sherwood's, as stated by Dr. Osborn, without inevitably destroying the woman; that it is not always practicable to extract a child by crotchet through a pelvis having

that space from pubis to sacrum, or from the fore to the hind part of the superior aperture. He then proceeds to discuss the mode of applying the crotchet, disputing the policy of the plan recommended by Dr. Osborn, namely, on the inside of the head. He says, "But if we apply the crotchet on the outside, especially under the lower jaw, we shall find it more easy to obtain a firm purchase, and to turn the head edgeways or more or less endways."

He afterwards gives some rules, or rather indications, of treatment in difficult cases. Those which belong to our subject are the following:—"Supposing the pelvis affected with rickets measures less than two and a half inches and more than one and eleven twelfths from pubis to sacrum, a fœtus of average size may be brought through by the perforator and crotchet; and it may be extracted by them even when the same diameter is less than the above, provided there be a space on one side equal to two inches from before to behind, and a little more than three and a half inches long. Supposing the pelvis distorted by malacosteum measures one and three quarter inch from before to behind on each side opposite the acetabulum, a moderate-size fœtus may generally be extracted by embryulcia, as the diameter taken from the symphysis pubis to the os sacrum is always considerably greater in these cases, and the pelvis sometimes yields a little to the head as it passes. The practicability of delivery will, however, depend in a great measure upon the depth of the tube of pelvis, especially anteriorly." After directing in the larger pelves to wait after perforating, he continues—"But if the directions given above should not be sufficient, we should break the bones composing the upper part of the cranium, by repeated application of the crotchet; and we should loosen them from the scalp, and extract them carefully with the fingers or a pair of forceps, to avoid injuring the vagina and other soft parts. When the deformity is very great it will be necessary to apply the crotchet on the outside of the cranium, in order to give the base of it a more favorable direction by turning it edgewise or more or less endwise."

These important observations and experiments have not, it appears to me, had their full weight upon practice. Possibly they have not been so completely gone into as they deserve.

Dr. Simpson, in entering upon the same subject, says ('Obstetric Memoirs,' 1855, vol. i, p. 622), after alluding to the error of changing position by the use of the crotchet, and increased difficulty thereby in cases of common embryotomy, says, "We are perfectly aware that when the pelvis is much contracted we are obliged, as has been well pointed out by Dr. Hull, to alter in various ways the presentation of the head, always, however, bringing it into such positions that its diameters are in each case those requiring the least possible space."

Foot-note to same.—"When the crotchet is fixed upon the posterior part of the parietal or upon the occipital region the infant's head can be brought down through an inch or so less in diameter than when the crotchet is fixed upon the frontal region. In fact, when the crotchet is fixed upon the forehead it brings the head down in an increased diameter, required by an ordinary forehead presentation."

This, of course, applies to ordinary perforations. But is this really the case? And if it is, to what extent is it so? Where is the division between an ordinary case of perforation and one in a much contracted pelvis? What is the rule for those cases which are between these extremes? It is highly important that we should know something of these points, in order that we may have some sort of principle by which to employ our traction, and some knowledge of the extent to which cephalotomy is required.

It is these questions whose answer is attempted in this paper.

And, first, it must be understood that, unless expressly stated to the contrary, the head is in the position termed "at the brim," with the base at least still above the brim. It will, it appears to me, be the clearer plan to consider first the best mode of delivering the head after perforation in

severe distortions, and then to pass to the notice of the less important obstructions.

If the whole calvareum of a full-term fœtus be removed, so that only the base of the skull be left, it will be readily perceived that the relation of the diameters is altogether altered, as I have before shown was illustrated by Drs. Hull and Burns. This is so self-evident that it were almost a needless task to enter further into the subject had it received that full attention it deserves.

The diameters of the head, in opposition to the conjugate, are nearly the same as before the biparietal was destroyed, the bizygomatic taking its place if the head be still pulled down in somewhat the same direction as that in which it presented originally; it will therefore be seen that but a slight advantage will be gained by this removal. The difference of half an inch is the very outside of the gain. This, of course, in slight obstructions, is sufficient for delivery, but of these I am not now speaking, because simple perforation will also give the same amount of reduction.

If, then, traction were continued by the crotchet attached to the neighbourhood of the centre of the base inside, nearly the same difficulty continues as before perforation. But by removing the calvareum we completely destroy the vertical diameters of the fœtal head, and thus annihilate the disadvantage of face presentation. What remains of the vertical diameter never exceeds an inch and a half in the largest child, but on the average is about one inch only. That is to say, the distance from the alveolar ridge of the upper jaw to the root of the nose or the supra-orbital ridge is of never more than these measurements. In this I do not reckon the lower jaw, because it never need be considered as a serious, or even any, obstacle; it either opens, thereby passing out of consideration, or it can be readily broken by moderate traction.

Let, then, a skull so reduced be made to present at the brim, with the face downwards, as in face presentation. It will be seen that the longitudinal diameter of the head,

normally opposed to the transverse or oblique of the pelvis, now is coincident with the axis of the pelvis. The transverse of the head is now opposed to the transverse or oblique of the pelvis; and the vertical diameters of the head, now reduced to between one and one and a half inch, is opposed to the antero-posterior or conjugate of the pelvis.

Now, as it is very seldom that the transverse diameter or its representative is so much reduced in distortions of the pelvis as to fall below the diameter of the bizygomatic, namely, from three to three and a half inches—say, in the largest clothed skull, four inches—it is evident that with this space laterally, and the conjugate of over one and a half clear diameter in the clothed pelvis, could we succeed in fairly adapting them, we should be able to draw an average-sized head through.

Of course, in the irregular distortions of the pelvis the difficulty of adaptation is great, and it will now and then happen that, although the antero-posterior diameter may be over two inches, its working diameter may be much less, or the lateral portions of the brim may pass backwards so sharply as to exceed the curve of the base of the skull. These conditions may cause an insuperable obstacle to the passage of the head in any way, and particularly if the outlet and cavity be also deformed. These are the extreme cases, and they must be carefully examined before delivery is attempted under the guidance of the principle for reducing the head as here laid down. Dr. Hull has carefully examined this point in the work above quoted, to which the reader will do well to refer. It is in the more common form, namely, reniform or ovate pelvis, that we find less difficulty in adapting the remains of the head to the distorted brim.

This adaptability will be still more complete when, with a face presentation, we cause the inside of the base to present backwards, so that the promontory of the sacrum can project into the hollow of the base, while the curve of the lateral portions of the base will naturally correspond to the curve of the distorted brim, which, it will be remembered, is always directed backwards in those whose antero-posterior

diameter is shortened either by rachitis or mollities ossium. In this case the chin will be forwards in the normal position, as in ordinary face presentations.

In the accompanying drawing is shown, of the natural size, the outline of the brim of the pelvis given by Dr. Swayne in last year's volume of the 'Transactions,' in which he performed Cæsarean section. In it is placed the head, face forwards, of an oversized fœtus, which weighed ten pounds, whose calvareum has been removed, also drawn of the natural size. This head was made to descend without much difficulty through it. Of course it will be understood that, the soft parts being absent, this result cannot be taken as a guide as to the possibility of delivering the child by craniotomy in this case. A rather small full-term fœtal head treated in the same way readily passed through this dry brim. This pelvis measured one and six tenths-inch in its longest antero-posterior diameter. The other measurements are given in the drawing.

But if, instead of inducing face presentation, we cause the head to present to the brim by the side, drawing it down sideways, as recommended by Osborn and others, it is not difficult to perceive that the neck would to a certain extent be added to the depth of the base in causing an obstacle to the passage; besides which the transverse or oblique of pelvis is still opposed to the longitudinal diameter of the head, instead of the bizygomatic, as in the face presentation instanced above.

Supposing, again, the occiput be drawn down first instead of the face, the diameters of the head as opposed to the pelvis are the same as in the face presentation above described; but it will be readily perceived that the neck adds considerably to the vertical diameter as soon as the posterior half of the base is drawn through the brim. Therefore we have the difference between neck and occipital bone as when face presents, and neck and facial bones with the lower jaw as when the occiput is drawn down, equal, at least, to an inch.

Thus it will be perceived that after the calvareum has

been removed the easiest position for the head to descend is by the face presenting downwards, the chin pointing forwards. This I wish particularly to dwell upon, because it has almost entirely been overlooked by obstetric authors in England, and, as far as I am aware, abroad also. I believe Dr. Burns is the only one who has clearly seen and described this point as I have above quoted.

Assuming that these points will be received as sufficiently proved, let us now turn our attention to those cases where perforation is required under the *slightest* amount of obstruction which may necessitate its employment. In the lesser obstructions requiring it, it is plain to all that the mere lessening the contents of the head will permit such a diminution of the diameters as will allow the head to pass by the assistance of the natural efforts or by very slight traction. In this case, of course, we do not require to do more than pull the head down in the original direction. This point also, I consider, will be admitted by all.

It seems, therefore, to follow that, if in considerable contractions of the pelvis the induction of face presentation, after the removal of the calvareum, is the best plan of delivering the head; and yet in the minor diminutions the original position, that is, the continuation of the vertex presentation, is the best; there will, of necessity, be states of pelves where the advantages of the two plans would be equal. In other words, we may put it as an inquiry—In what amount of pelvic contraction can we best induce face presentation, and in what continue traction by pulling at the occiput?

This will be answered by ascertaining the reduction of the various diameters of the fœtal head produced by varying the degree of the evacuation of the brain, and afterwards removal of different quantities of the bones of the calvareum.

It will be well to remember that after lingering labour with vertex presentation, the head having entered half way into the brim, there has been a not inconsiderable diminution of the fronto-occipital diameter as well as of the lateral, so that, could the presentation be converted into a face, a

great portion of the obstacle to this latter presentation would be removed. The appearance of the fœtal head after both these presentations readily show this point, the chief difference being that after face presentation the vertical depression is the more complete, the elongation taking place more towards the occiput than in the lingering vertex labours. However, the elongation, and that in a backward direction, of the mento-bregmatic diameter, by these means would interfere somewhat with the facility of the conversion, presenting, by its projection against the right or left side of the promontory of the sacrum or other portions of the brim, an obstacle requiring some force to overcome. Again, supposing we perforate and evacuate some of the brain, we shall still further reduce the fronto-occipital diameter, in addition to that produced by the compressive action of the pains, and therefore, to a certain extent, neutralize the comparative advantage of changing the direction of the presentation.

Another point has also to be considered, namely this, that with face presentation at the brim, even with a certain amount of reduction of the size of the cranium, the bi-zygomatic diameter of the fœtal head is still opposed to the conjugate of the brim, much the same as in ordinary vertex presentation; while the fronto-mental corresponds with the oblique of brim, in obedience to the mechanical law that the smallest diameters of the head will be opposed to the smallest of the brim, and the longest to the longest; as long, therefore, as the bizygomatic is smallest it will oppose the antero-posterior of brim, so that it follows that till the reduction of the size of the cranium is carried to a point below the bizygomatic diameter there will be no material advantage gained by altering the vertex presentation into that of face. If we calculate the average of the clothed bizygomatic of a full-term fœtus at the lowest to be three and two eighths of an inch, then down to that point there will be no particular advantage in changing the vertex presentation into face, excepting this, that if the bones easily separate we have a better hold on the outside of the

skull, with less liability to bring away the bones. It is when the antero-posterior diameter of the pelvis falls below that of the bizygomatic that the advantage of induction of face presentation begins to be apparent, but, of course, only by the removal or fracture of more or less of the bones of the calvareum, proportionately to the decrease in the conjugate.

In order to ascertain the amount of reduction of the diameter of the fœtal head under varying degrees of perforation, evacuation, and breaking up of the calvareum, I have made experiments, comparing these diameters which oppose under the different presentations.

The details of these examinations I have placed in a somewhat tabular form, but the results all lead to the same conclusion, which I may briefly sum up in these words:—After perforation, and up to the evacuation of about one quarter of the brain, the occipito-frontal diameter is smaller than the mento-bregmatic; but after this point the mento-bregmatic diminishes in direct proportion as we evacuate the brain, reduce the rigidity of the calvareum, or remove it altogether.

In other words, when a quarter of the brain has been evacuated, and the bones of the vertex somewhat softened by the aperture made by the perforator, the mento-bregmatic and the occipito-frontal cause equal resistance, but that the continuation of the evacuation and removal of the bones renders proportionately the mento-bregmatic the less. Thus, the induction of face presentation, after this point has been reached will be the most easy way of delivering the head, provided the obstacle cannot be overcome by traction on the occipital bone, and provided the conjugate be less than the bizygomatic as I before mentioned.

These experiments have been made upon fourteen full-term children, many of whose heads were larger than the average.

From the analysis of the results of these experiments the case may, perhaps, be stated even stronger, for it will be seen that although, as all are well aware, the vertex presen-

tation is better than the facial when the head is in the natural state (although not so much always from its less diameter as from its greater facility for compression), yet that directly after the opening of the skull, and evacuation of as much of its contents as takes place in the simple forms of perforation, the vertical diameter, or mento-bregmatic, receives a reduction in a greater ratio than that one which engages the brim in ordinary vertex presentations, namely, the fronto-occipital. Indeed, even in this stage in many instances the former was actually rendered *materially* less than the latter, so that at any rate the conclusion above arrived at may be accepted as rather within the truth than beyond it.

To militate against this advantage there is the less compressibility of the head in face presentations, also the obstacle above alluded to from the elongation of the head into the cavity of the pelvis.

It will, however, readily be seen, from the nature of the case as well as from the experiments, that upon removing a part of the calvareum these two objections cease entirely, while at the same time all the advantages which I have pointed out to be gained by face presentation after total removal of the bones rapidly come into play.

I have in these remarks treated the head at the brim as if the plane of the fronto-occipital diameter were parallel to that of the brim (a point which has many supporters), because in this case it makes no difference; any obliquity which does or may occur does not influence the principles here laid down, acting equally in all.

I have not alluded to the obliquity the above-named diameters of the head may assume during its progress through the brim, because, as this takes place by mechanical force, the movement is sure to occur in those directions which give the least opposition to the passage, and any obliquity which occurs acts equally to the advantage of both.

Of course, in the more complete mutilations of the head, and in the severe and irregular distortions of the pelvis,

such as those produced by mallacosteum, the head will have to be brought through in a less regular manner than obtains in ordinary simple perforation, but then this also has equal effect on both sides of the question; all our traction must, however irregular, be guided by some principle or another, and it seems to me a great advantage to know for certain the position of the head, which of necessity offers the least obstacle to a deformed brim; the advantages to be gained by altering slightly, by swaying or other procedure, the head in its newly induced position will be readily recognised by those at all conversant with the operation, and which will be developed in the progress of the case almost as a matter of course. This may be well observed if we watch the descent of the head reduced as above indicated whilst drawn through an unclothed pelvis. It will, unguided, in the majority of cases, follow in the direction most free from opposition. Should any check take place it will be then overcome by varying slightly the direction of the traction.

These remarks are, indeed, but truisms; yet in all their bearings they are not so fully considered as they ought to be, neither by authors nor by most of us. Perhaps a good illustration of this may be frequently found in the records of severe craniotomy cases, where it is stated that, after long-continued efforts to draw down the head by the crotchet in every direction, it was at last accomplished by hooking the instrument into the orbit, superior maxilla, or zygoma.

In urging, however, the advantage of face presentation after a certain degree of collapse of the skull, I may be permitted again to mention that it is clearly to be observed that there is much difference in the opposing diameters, whether the chin descend anteriorly or posteriorly, and this holds peculiarly strong in considerable contractions of the pelvis. A glance at any pelvis whose sacrum has fallen forwards will show that there is a general tendency to a quarter-moon form, the concave aspect being forward; and this may be said to be more or less present in the working

spaces of even the most distorted brim of this class. A slight consideration also in reference to the form of the base of the fœtal skull without the calvareum points out a similarity, at least in its internal aspect, and consequent adaptability to the projecting sacrum.

Hence, it makes some difference in these cases of severe distortion whether we make these curves coincident or opposing, and particularly in the Y-shaped or *beaked* pelvis. It is not difficult to see that if we do not attend to this point we may lose the advantage in some cases of three quarters of an inch to one inch.

I directed my attention during the experiments with a view to ascertain how best to secure this result, and I was pleased to find that there was a great tendency in the mutilated head during traction to assume, by the mechanical forces, a position which gradually brought about this desired coincidence; besides which it was found always quite possible and easy at the commencement of drawing down to change intentionally the position of the child from the posterior-oblique aspect to that of the anterior-oblique; when so much has been accomplished, if we draw down the face, the chin readily glides forward and assumes the position as in ordinary face presentations. It is only the first quarter turn which is required, and the rest follows naturally, and this quarter turn is best made at the very commencement of traction. Of course I assume that by this time the exact position of the head has been ascertained, which is easily done by an examination of the base, even if not discovered previously. And the observations from these experiments have been corroborated by actual practice, for I have not hitherto found any difficulty in inducing the chin to take a forward direction.

To place the whole of these observations in a concise form, it may be said as follows:—That although, as has been always acknowledged, the vertex presentation in natural labour is the best, and that after perforation and the evacuation of the brain up to the extent of one fourth this rule holds good; yet if the evacuation of the brain and

collapse of the calvareum by this means, or by more or less fracturing the bones, be carried to a greater degree, that is, in cases where the conjugate diameter is less than the bizygomatic, we find that the facial presentation affords the easiest mode of delivery; and, further, that if we remove the whole calvareum, leaving merely the base, and then induce face presentation, taking care that the chin as it descends point anteriorly, we diminish to the smallest possible amount the opposition of the head, leaving only from one to one and a half inch in depth to oppose the conjugate diameter of the pelvis, and three to three and a half, at the most four, inches to the transverse or its representative. When I say "to the smallest possible amount," I mean except we remove the whole of the base piecemeal.

It now remains to consider what practical inferences we can draw from these facts, and in what manner we can best apply them; afterwards to give some illustrations of their application to practice.

The first inference which I would mention is that, when the pelvis was only moderately contracted in its antero-posterior diameter, and it was found that after the simple operation of perforation due traction made by the ordinary means failed, it would be better to remove a portion of the calvareum purposely, if this had not been already done by the efforts of pulling; or to fracture the bones of the calvareum; or both combined, and then to induce face presentation. The extent of fracture and removal of the bones must depend upon the deformity of the pelvis; but I am sure it would be better to make it too complete than the contrary, for whereas this portion of the operation is but simple, and with ordinary care against laceration attended with but little risk, the same cannot be said of the tearing away portions of bone during the continued endeavours to pull down the head in the manner generally done. The former is done methodically, with only moderate force, whilst the latter is produced by an uncertain quantity. The best plan to effect this object is to pass the outer blade of the craniotomy forceps between the scalp and the bone,

instead of outside the scalp. By this means the bone is more readily torn away, being also protected by the scalp completely till the hand can guard it from lacerating. Let portion after portion be thus removed, and then, before the face presentation is induced, the loose portion of scalp is to be carefully folded over all the edges and passed inside the opening of the bones. It is generally the best plan to fracture the bones first by a sudden twist of the hand, as suggested by Dr. Simpson.

The second inference we may make is the extension of this action to those cases where the distortion is severe. Where the conjugate diameter is reduced below two and three quarter inches, the fœtus being at full term, then the best plan is to carefully and intentionally remove the whole, or nearly so, of the calvareum, as just above described, carefully preserving the scalp as a covering for the edges of the bones, after which the face is to be made to present. The chin should be drawn anteriorly if it be not already in this position. As in the partial removal of the calvareum, so also in the complete, it is best to do it in the manner above mentioned.

It may be here incidently remarked that in all cases of perforation, where it can be easily done, it is of great advantage to pass the hand altogether within the vagina, both when perforating and also when removing the portions of bone. As a rule, it will be found very practicable, as those cases are comparatively rare where, except in mollities ossium, the outlet and cavity will not permit the hand to pass; and it gives great comfort to the operator's mind, inasmuch as he can regulate his movements with precision; and much security to the patient, as the soft parts can be guarded with a certainty, impossible with the fingers as usually employed.

If the bones be difficult to fracture or remove, then the employment of Dr. Simpson's cutting craniotomy forceps may be employed with benefit; but it is very necessary to be particularly careful that the sharp edges of the cut-bone be not without protection.

It is advisable to leave the orbital ridge, in order to give facilities for producing face presentation and to give a firm part upon which to pull; and the occipital bone should be well looked to, in order to remove any spicula projecting from it, even although guarded by the scalp. If it be difficult to remove all, or if the pelvis be not much deformed, then it might be permitted to double the upper parts over into the interior of the base, so as to be out of the way.

The mode by which face presentation is induced is by no means difficult, and the readiest plan, I believe, will be found to be by means of the crotchet or, which I much prefer, at least at the commencement of the operation, by a small blunt hook. The one I use is of the following size:— The diameter of the iron rod from which it is made is about a quarter of an inch, of the length of the ordinary blunt hook, with handle also alike. The hook is a half circle about one inch in diameter, and is made hard to prevent its opening during traction; the shaft is made of soft iron, and can be bent by the hand into any form, being thus adaptable to any situation. I may mention here that this hook is useful in other cases in a variety of ways, where it is impossible to employ the unwieldy blunt hook in general use.

The advantage of this hook over the wide awkward crotchet for the passage outside the head is immediately apparent when we consider that by passing it flatwise it cannot possibly do harm in even unaccustomed hands, which cannot be said of the crotchet in such a position; and when it is understood that we have not to fix the hook into the skull but into the natural ledges against which we pull, namely, the orbit, zygoma, upper and inferior maxillæ; and, further, when we see that it can be so readily dislodged from these attachments, a movement by no means easy in the crotchet, even should it not have penetrated the bones.

If this small hook be passed flatwise along the exterior of the head anteriorly, and when it has reached the probable position of the orbit then the point can be turned towards the head, and afterwards, by gently feeling, it can be easily

ascertained if it has lost hold of the supra-orbital ridge. If it has a firm hold, we may at once conclude that it has reached this point; if the hold be not firm, we have probably found the zygoma. We may draw upon this latter point because I have found that traction on this point will also cause the face to come downwards ultimately, at least so as to shortly reach also the orbit. However, it will always be best to ascertain the actual position of the face, and then to pass the hook in that direction, and the orbit will be certainly and readily found. If we do not at once hit off the orbit we must feel gently with the hook in the neighbourhood; but, as far as my own experience is a guide, there is very little difficulty in the matter. One thing prevents much mistake, which is that we cannot with the hook bring down the occiput, it will glide off it, while the anterior part of the head, which we wish to bring down, has numerous points of attachment. And here, again, the advantage of the small blunt hook will be seen, that, whereas the crotchet would seize any inequality and thus deceive us, the other would only retain hold upon the desirable parts. I generally, in the less complete reduction of the fœtal head, bend the shank of the hook so as to facilitate its adaptation to the curve of the head's surface, in the same form as the shank of the crotchet.

When then the hook has taken hold of the orbit, we must gently draw it down, securing as before mentioned the gliding the chin anteriorly should it not have already done so. After the face has been caused to present nearly downwards, the hook, from the position of the orbit, ceases to hold, and may glide off; it is then to be passed into the mouth or under the under jaw. I prefer the former, but should it slip from this then it can be readily carried under the under jaw. Should there still be difficulty of retaining firm hold now, the crotchet should be employed, for the objection to its use before noticed has by this stage ceased; the point can be pressed into the hard palate, and thus a secure attachment made, and even the blunt hook can be made to assist at the same time, and thus a steady

traction can be employed with the face thoroughly presenting.

By these means, and by such modifications of it to varying conditions as any practitioner used to perforation will readily judge judicious, the induction of face presentation will be found not at all difficult, and, once accomplished, it will be seen to be productive of the best results. The descent of the head, before impossible, now takes place with much celerity; nothing is more surprising than the rapid advantage gained, as has been witnessed by me in several cases.

In these cases, as above shown, there is no necessity for taking the impediment the lower jaw will give into account, for when traction is made on the upper the lower jaw is depressed, and thus the mouth is so opened that it ceases to impede.

Should this, from unusual circumstances, be not the result, the jaw can without much difficulty be broken, and thus also it will give no resistance. This should be avoided, if possible, inasmuch as in all these operations any unnecessary chances of laceration should, of course, be carefully guarded against. The depth from upper alveolar ridge to root of nose or frontal sinus is seldom more than one and a half inch, generally about one inch; the same measurements will also represent the depth of the rest of the base till the anterior half has passed. The resisting portions are then composed of the neck and posterior half of the base; this is about the same as the former in effective resistance, perhaps rather less, for the neck is not quite a compensation for the facial bones.

It should be here remarked that when the conjugate diameter is decidedly small, and we have begun to remove the bones, we must not be tempted, in order to gain time, to induce face presentation till we have accomplished what we had at first intended, otherwise it may prove not so complete as the case requires, and it will be difficult to reach the occipital bone again, or at least it will cause unnecessary trouble and distress. The removal of every

portion of the calvareum is not absolutely required in the cases where the conjugate diameter is about two and four eighths inches; below that measurement it will be proper to remove all.

The rules for guarding the maternal soft parts during every stage of the operation are the same, and as requisite as in ordinary craniotomy, of which, indeed, the plan above indicated can scarcely be called a modification, being rather the substitution of a definite plan of management for an indefinite one. But to one point here it will be well to call attention, namely, that in the employment of traction on the outside of head the point of the instrument is always directed away from the maternal soft parts, and the danger of laceration from the instruments much reduced.

How far the use of the cephalotribe in vertex presentations may be superseded by this manner of delivering the head after perforation I am not in a position to say. From the results of my own experience, my impression is that, as far as brim obstructions are concerned (and it is with these only I have here dealt) we shall be able thereby to accomplish as much as, and a great deal more than, can be done by this instrument. Comparing the relative risks of lacerating the maternal soft parts by either, one would think that there was not much difference. Carefully done, the removal of the fragments of bones need seldom cause injury; about the same may be said of the extrusion of angles of bone during the crushing of the cephalotribe, because they would in most cases be covered by scalp; without this protection the latter instrument would be more likely to injure, because it would occur without our knowledge.

Comparing the ease of application, it is clear that the small blunt hook can be passed in spaces impassible to the cephalotribe.

In the severe contractions of the conjugate diameter delivery of the head by the plan above recommended is more practicable than by crushing. No amount of compression can so effectually reduce its diameter as the removal of the

calvareum. Indeed, there is little doubt but that it brings us to the boundaries which divide embryotomy from Cæsarean section.

By it we can reduce the head to such small dimensions that it will pass more readily than the remainder of the body. In one of the cases hereafter given I found even the fœtal pelvis cause much more trouble to draw through the brim than the fœtal head.

And thus Dr. Osborn, although he asserted strongly upon only one case, was not so very wide of the truth as his contemporaries would have us believe when he asserted that, given a conjugate diameter of one and a half inch, he could bring a child through. That there were other elements to be considered before he could with safety assert that thereby Cæsarean section could be done away with was well pointed out by his critics; but doubtless he saw so clearly the advantages that the tilting of the base of skull purposely (although he did not tilt it in the best manner) gave the practitioner, that the gist of the question whether the fœtus could be brought through the natural passages in extreme cases, did not then apply to the head.

Be this as it may, I feel that with craniotomy, conducted on the principles herein indicated, the consideration as to the performance of Cæsarean section is to be influenced rather by the size of the body, and particularly of the pelvis, than by the size of the head.

This brings us, as above observed, to the plan recommended by the late Dr. Davis in extreme cases, namely, of removing the child piecemeal by the instrument he invented —the osteotomist. However, it is not intended here to enter on this part of the discussion; but this much, I think, may be said in reference to delivery by natural passages or by Cæsarean section, that in extreme cases, with the fœtus alive, we should carefully weigh the respective dangers; but if the fœtus be already dead, and particularly if decomposition be commencing or already established, whereby the peritoneum will be exposed to most irritating matters, then, the risk of Cæsarean section being extreme, we should

proceed to reduce the bulk of the fœtus by these other measures, if they be by any means practicable.

In the above remarks I have purposely avoided discussing the plan of turning after perforation, which is valuable in certain cases, confining myself to cases of vertex presentation, where we have no option but to deliver the head as it originally presented at the brim. However, here we must be guided by the foregoing principles; and should the head remain fast after version, *the occiput* should be drawn down first, in preference to the face.

It might be said that in using the crotchet inside, or the craniotomy forceps, in every case of craniotomy, we do virtually tilt the skull when these are employed in front or on side of head. To a certain extent this is true, but hitherto the directions have generally been to apply them to the posterior rather than to the anterior, or to any part indefinitely. In some works the crotchet is directed to be applied to the sella tursica or foramen magnum, than which nothing can more show the want of appreciation of the whole question. The difference between the application of the tractor to the inside of the skull and when applied to the orbit or upper jaw is, that the latter is definite and complete, and in severe contractions of the conjugate diameter this makes the difference between the possibility and impossibility of delivery. This imperfection of alteration rather tends to increase the opposing diameters produced by the head than to decrease them in the extreme cases; it is, however, of less importance in the minor contractions.

There is one more practical hint which may be derived from the above considerations, namely, that the plan of waiting for collapse of the bones need not be employed. When once we have determined to perforate, it will be best to proceed at once to its final result. The putridity of the child adds much to the risks of the mother, especially if abrasions or lacerations should occur. These remarks, perhaps, are scarcely needed in the present day, but I think they cannot be too well remembered.

It must not be understood that in the above remarks it

is intended to be stated that the passing of a hook outside has never been employed as a means of delivering the fœtal skull, because the records of difficult cases show that it has been frequently done; but generally, as a last resource, after long trials with the other instruments, most of them generally show that no distinct ideas have possessed the minds of the operators as to any advantage of one position of the mutilated head over another.

To place this upon a more accurate and scientific bearing has been the endeavour of this paper, as well as to point out its advantage in practice, as shown in the following cases.

Illustrative Cases.

The results of these cases must not be quoted in respect of the statistics of mortality after perforation, because they are the more severe instances, and because the deaths which occurred were owing to its postponement, not to the operation itself.

Case 1.—January 11, 1863; in Guy's Hospital Maternity. Mrs. ——, about forty years old; has had six children; all her labours were difficult, but all her children born alive. The last is four years old.

She had been some thirty-six hours in labour, without progress, when it was found that the pelvic brim was much reduced in the conjugate diameter. An attempt was made to turn, but the leg would not pass the head. The operator desisting, I made a careful digital examination of the brim, and found the antero-posterior diameter measured not more than two and a quarter inches. This I ascertained by the joints of middle finger, and by the fact that my wrist would not readily turn round at this part. Not only did the sacral promontory fall forwards, but the symphysis projected backwards about half an inch; both bones were thickened and irregularly nodulated. Besides this the transverse diameter was contracted to a small extent on the right side, apparently from the shape of the horizontal ramus of pubis;

I therefore at once perforated. I found the bones of the cranium easily separable upon slight traction; so much so that it was impossible to employ much force by the craniotomy forceps. As soon, therefore, as a considerable portion of the calvareum was removed I passed up the small blunt hook in front of the head, on the outside, and seized the most anterior projection, in order to produce face presentation; the part seized proved to be the supra-orbital ridge. The head immediately rotated, the face coming down with face to pubis. The head was brought down after gentle traction, the chin passing to the left side of pubis in its descent. Just before the head was delivered the hook was changed into the upper jaw, and so continued till the end of delivery.

The shoulders gave much more difficulty, and the passage of the pelvis through the brim was much more troublesome than that of the head after the induction of the face presentation. I may mention that chloroform was given, and acted very benignly. The patient did very well.

Case 2.—March 10, 1863. Mrs. C—, third pregnancy, at full term; the *first* child born dead after a most lingering labour; the *second* delivered alive by forceps after severe traction, with some laceration to os uteri.

I was called into her in the *third*, after having been in labour thirty hours. The head was above the brim, but as she had not been in very full labour long I waited twelve hours, during which period no great improvement took place. The brim was probably a little over three inches' antero-posterior diameter, and, as she was beginning to lose strength, the forceps were applied—the long pair—with some difficulty, on account of the cicatrices of os and the elongation of its posterior lip. However, I found it impossible to bring the head through the brim by legitimate pulling, upon which I endeavoured to turn. I, however, found the uterus contracted as tightly as possible round the neck of fœtus. There were no signs of pulsation in neck, &c. I therefore gave up the plan of version for perforation; this was accomplished while left hand

was in vagina. The bones were very firmly ossified. I had at first great difficulty in drawing down the head by the craniotomy forceps and crotchet, owing partly to the retention of the child by the uterine contraction. But when I had produced face presentation by the small blunt hook, passed on the exterior of skull into orbit, the head came without any great difficulty, and the rest followed without much further trouble.

Case 3.—July 22, 1863. A single girl, æt. 19; much undersized in every respect. The pelvis was puerile, with an antero-posterior diameter of two and a half inches, as far as I could ascertain. The whole diameters were, of course, deficient. The sacrum had fallen forward, causing a very hollow back, and rendering the cavity of pelvis very shallow. She had been in labour twenty-four hours, and the funis prolapsed for twelve hours, before I saw her.

The head was wholly above brim, the os uteri not fully dilated. The medical attendant had already perforated, and had removed some bones from the calvareum; but the opening had been closed up by the pressure of uterine action, and yet the head had not descended, nor could he bring it down by the crotchet or craniotomy forceps. I found that the head would have to be opened afresh, so tight was the closure of the original aperture, in order to employ the crotchet or other instrument inside. However, as there seemed to have been a considerable reduction of the total size of the head, I determined to induce face presentation, which was accomplished by passing the small blunt hook into the orbit. Traction was made in a backward direction so as to bring down the face, and at same time draw it behind the pubis, on which it rested. Advance was gained, but the orbit gave way; the craniotomy forceps were then employed to the front of the head, and after some variation in the direction of the traction the head was delivered, after which no difficulty arose.

She did well afterwards, but when I heard that she was again pregnant I recommended induction of premature

labour, but this she avoided, and placed herself under another medical man, who knew nothing of the precedents, but who was obliged to employ craniotomy, with much difficulty.

Case 4.—Sept. 27, 1863. Mrs. P—, a stout primipara, had been in labour thirty-six hours when I saw her; two attempts to deliver by forceps had failed. The pains had gone off, but the uterus was rather tightly contracted round the child. Patient was rather exhausted, but nothing of moment. The head was above the brim. Thinking it useless to apply the forceps again, I attempted turning, as the child was still alive. Chloroform was given, but I could not bring the foot past the head, which would not recede. During this effort the child died from funic pressure, and thus there was no use in persevering to turn. Upon this perforation was employed. The head was very firmly ossified, so that little collapse of diameters occurred. Traction not producing any benefit, I proceeded to remove the greater part of calvareum, a matter of no slight difficulty, from the excessive rigidity of the bones and general diminution of the cavity of the pelvis. However, by care and time this was accomplished, assisted much by Simpson's craniotomy cutting forceps. After this was accomplished, I passed the small blunt hook into the orbit and made face presentation; in this manner the head came through the brim without trouble, but the passage was rendered difficult by the small pelvic cavity and unyielding nature of the cranial bones. However, after carefully guarding the soft parts, which required much time, the head was delivered, but it required an hour more, and no very gentle efforts, to deliver the shoulders. This at last was accomplished, and she recovered without any anxious symptoms, rather slower than after normal labour. Reliable measurements of the diameters were not taken; probably antero-posterior of brim was about three and one quarter inches.

Case 5.—A small, single primipara, æt. 19, had been in

labour two days when I saw her; fœtal head remaining still above brim, the os having been dilated twenty-four hours. She was in powerless labour, and for the last few hours the death of the child was very apparent from the putridity of the discharge, which filled the room. Pulse 120 p.m. Uterus remaining firmly contracted around fœtus, without the slightest rhythmical action.

I found the antero-posterior diameter of brim not much more than two and a quarter inches, the promontory of the sacrum low down and readily reached by the finger; the cavity ran backwards, at first nearly horizontally, then curving round to the coccyx. The whole brim smaller than normal. The remainder of pelvis imperfectly developed, although the outlet was not so bad as the brim.

I perforated at once, and at once proceeded to remove calvareum; this was readily accomplished, owing to the ease with which the bones separated. By seizing a portion of the frontal bone the craniotomy forceps produced face presentation, and the head was soon delivered, but great difficulty was experienced in delivering the shoulders; the thorax had to be reduced by the crotchet. However, after a short time the body was delivered, and the placenta was obliged to be removed. She continued to evolve the putrid odour till she died, five days after delivery. The secretion of urine was nearly suspended, and she died in a typhoid state. This patient refused chloroform.

Case 6.—This patient I had delivered once before by forceps, and again, about a year before, by perforation, after the trial of long forceps, with much difficulty, she having a brim of not much over three inches in its conjugate diameter, the head of the fœtus also being of large size and highly ossified. When she became again pregnant she refused the induction of premature labour; I therefore, in conducting the case, told her I would not accept the responsibility; however, as she was very anxious for a live child, I endeavoured to deliver by the forceps first of all. In consequence of spontaneous laceration of a rigid os in the

first labour, there was contraction of os, which in the last labour required three days for its expansion. To overcome this I dilated it with elastic water bags, with such effect that in three hours I was able to pass the long forceps, the head being still above the brim; it was a very firm one, and evidently large. As I had anticipated, I found the forceps useless, even using them to the limits of safety. I had therefore to perforate, evacuating brain and fracturing the bones, but I could not deliver by the craniotomy forceps and crotchet, nor until I had passed the small hook into orbit and brought down the face first. She was about again on the sixth day. Chloroform in this case could not be employed, owing to the excessive bronchitic dyspnœa of the patient. This was a great disadvantage, as her intolerance of pain made it very difficult to pull downwards properly. Had I not been able to deliver as mentioned, I should have had a much greater amount of trouble.

Case 7.—Guy's Hospital Maternity, January 23, 1863. Mrs. B— primipara, about twenty-five years old. There was a tumour in posterior part of pelvic cavity, extending from tip of coccyx to half way towards the promontory of sacrum, diminishing the antero-posterior of cavity to about half, and extending laterally about half way forwards; it was semi-elastic, with harder parts in places, but contained no fluid, as proved by the use of the trocar and canula. Some hours of full pains had elapsed without any progress past the tumour, upon which I employed the forceps, without any result. The more traction was employed the more the tumour bulged in front of the head. After many useless efforts I determined upon perforating the head. This I did between the blades of the forceps, but no descent took place upon pulling firmly. They were removed, and the craniotomy forceps and crotchet were used without benefit; the calvareum was then broken up and in part removed, whereupon I passed the crotchet outside the skull, bringing down the face foremost, when the head slowly descended and was delivered. The remaining bones

of the calvareum were pressed into the base of the skull, so that the vertical diameter was reduced to nearly its minimum. The head was large. The patient recovered well.

Case 8.—This was a case in which the arm had descended with the head. The medical practitioners in attendance had used forceps, and many times endeavoured to return the arm above the head; but neither could they draw down the head, nor return the arm into the uterus. After efforts of some hours' duration they perforated and removed the calvareum, with no better result. The patient was passing into the powerless condition fast; the pulse intermittent, with sordes on the teeth, brown furred tongue, haggard expression, and tympanitic abdomen. The head was partly in the cavity of pelvis. To her in this state I was called in. I tried to draw it down with the crotchet and craniotomy forceps, which was partially successful, but on placing the small blunt hook on the outside of skull and fixing it on orbit, the skull, now deprived of a great part of its calvareum, was thereby quickly tilted, and delivered without any further trouble, the chin gliding underneath the pubis rapidly, the arm coming down along with it. However, this patient never rallied, but died within six hours after.

Details of Experiments.

Experiment 1.—*Full-sized fœtus.*

	As in vertex, occipito-frontal.	As in face presentation, mento-bregmatic.	Biparietal.	Bizygomatic.
Natural size	$4\frac{4}{8}$	5	$3\frac{6}{8}$	$3\frac{2}{8}$
After perforation	$4\frac{1}{8}$	$3\frac{6}{8}$	—	—
Calvareum nearly removed	—	2 (now mento-frontal)	—	—
Ditto, quite removed	—	$1\frac{1}{2}$ (mento-orbital)	—	—

When "after perforation" is mentioned, here or elsewhere, it means the simplest form in which the operation is employed.

Experiments 2 to 4 inclusive.

Experiments were made with three full-grown fœtuses. The calvarea were removed, and in all the mento-orbital diameter did not exceed $1\frac{4}{8}$ inch.

Experiment 5 (see Case 1).

In this case, where, with careful digital measurement, the pelvis of the mother possessed a conjugate diameter of only $2\frac{4}{8}$ inches,—the fœtus, moreover, weighed about 10 lbs. ($9\frac{1}{2}$ lbs. without brain or blood)—the head was perforated, and the principal part of calvareum was removed; the craniotomy forceps were useless as tractors, on account of the ease with which the bones separated from one another. The small blunt hook was then passed on the outside of head and fixed into the orbit, upon which the face was easily drawn down; with moderate pulling the head was delivered, certainly with much more ease than the pelvis of the fœtus. The chin was anterior to left of symphysis pubis.

On measuring the head after, I found the mento-orbital depth $1\frac{4}{8}$ to $1\frac{6}{8}$.

But when the occiput was placed in the position in which it would be if it were hooked down first, I found the smallest diameter by which it could pass the brim $3\frac{4}{8}$ inches. That is, from about the supra-orbital ridge to the nape of neck.

With the face presenting, the greatest opposing diameter was, without any compression at all, $2\frac{2}{8}$ inches, but a gentle compression easily reduced it to $1\frac{4}{8}$ inch.

EXPERIMENT 6.—*Full-term fœtus; head firmly ossified and unyielding.*

This was a case of perforation for obstruction by a tumour in cavity of sacrum (see Case 7), in which, after evacuation of brain, fracturing the bones, and removing some portions of them, face presentation was induced by the blunt hook, and the head drawn away without any great difficulty, but with the frontal and other bones completely pressed down into the base so as to pass the tumour.

When the bones were replaced the diameters were measured; they were as follows:

Occipito-frontal	$3\frac{5}{8}$
Mento-frontal	$3\frac{2}{8}$

This shows a gain, without compression, of $\frac{3}{8}$ inch. But in the state in which it was delivered the latter was reduced to much less, and when the calvareum was removed the mento-frontal was reduced to the same as in former examples.

The bizygomatic diameter was $3\frac{3}{8}$ inches.

EXPERIMENT 7.—*Full-term fœtus.*

Natural size { Occipito-frontal . $3\frac{6}{8}$ inches
Bi-parietal . . $3\frac{3}{8}$ to $3\frac{4}{8}$ „

The calvareum was removed, except the occipital bone, which was bent in, and the scalp drawn down over all the edges.

Occipito-frontal was 3 inches (occiput downwards).
Orbito-mental „ $1\frac{2}{8}$ „ (face downwards).

I could not make any opposing diameter with occiput downwards less than three inches.

I then tested the reduced head through a pelvis whose antero-posterior diameter was not more than 2 inches;

face downwards, chin anterior; it passed through without any difficulty; with the chin posterior it passed with some trouble, but this was got over by bringing the chin well down. But the tendency was for the chin to pass anteriorly as it came down. But with the occiput drawn downwards it was impossible to cause it to pass the brim, or, indeed, in any other direction than face presenting.

EXPERIMENT 8.—*Full term, weighed nearly* 11 *lbs.*

	As in vertex presentation, occipito-frontal.	As in face presentation, mento-bregmatic.	Biparietal.	Bizygomatic.
Natural size . .	$4\frac{2}{8}$	$4\frac{6}{8}$	4	$3\frac{3}{8}$
After perforation .	$4\frac{6}{8}$	$4\frac{4}{8}$	—	—
Calvareum in part removed . .	$4\frac{2}{8}$	$3\frac{6}{8}$	—	—
Calvareum quite removed . .	—	$1\frac{1}{8}$	—	—

EXPERIMENT 9.—*Full-term fœtus.*

	Occipito-frontal.	Mento-bregmatic.	Biparietal.
Natural size . . .	$4\frac{2}{8}$	$4\frac{2}{8}$	$3\frac{5}{8}$
After perforation . .	$3\frac{7}{8}$	$3\frac{1}{8}$	—
Calvareum removed .	—	$1\frac{2}{8}$	—

In this case the first two diameters are the same, but after perforation, although both have gained by it, the mento-bregmatic has gained the most in reduction.

EXPERIMENT 10.—*Full-term fœtus.*

	Occipito-frontal.	Mento-bregmatic.	Biparietal.	Bizygomatic.
Natural. . . .	$4\frac{6}{8}$	$4\frac{6}{8}$	$3\frac{3}{8}$	3
After perforation .	4	$3\frac{6}{8}$	—	—
Calvareum in part removed . .	$3\frac{5}{8}$	$2\frac{5}{8}$	—	—
Calvareum quite removed . .	—	$1\frac{4}{8}$	—	—

Here, also, it will be seen that the first two diameters

are the same, but after perforation the mento-bregmatic begins to be the least, after which it becomes the least of all.

EXPERIMENT 11.—*Full-term fœtus, weighing* 10 *lbs.*

After perforation, and rather more collapsed than in above cases . . .	occipito-frontal was	$3\frac{4}{8}$ to $\frac{6}{8}$
	mento-bregmatic	3
	or without lower jaw	$2\frac{6}{8}$
Calvareum removed		$1\frac{4}{8}$

or rather less.

EXPERIMENT 12.—*Full-term fœtus, with head rather flattened above.*

	Occipito-frontal.	Mento-bregmatic.	Biparietal.	Bizygomatic.
Natural size . .	4	$3\frac{2}{8}$ to $\frac{1}{8}$	$3\frac{5}{8}$	$3\frac{2}{8}$
After perforation .	$3\frac{6}{8}$	$3\frac{1}{8}$	—	—
Cranial bones all fractured . .	$3\frac{1}{8}$	$2\frac{3}{8}$	—	—
Cranial bones quite removed . .	3	$1\frac{2}{8}$	—	—

In this case long labour had reduced the mento-bregmatic diameter below the occipito-frontalis, so that the former all through possessed less length than the latter.

EXPERIMENT 13.—*Rather small full-term fœtus.*

	Occipito-frontal.	Mento-bregmatic.	Biparietal.	Bizygomatic.
Natural size . . .	4	$3\frac{4}{8}$	$3\frac{4}{8}$	$3\frac{4}{8}$
After perforation . .	$3\frac{2}{8}$	$3\frac{2}{8}$	—	—
After removing nearly all calvareum .	$2\frac{6}{8}$	$1\frac{4}{8}$	—	—

In this instance it will be observed that from the first the mento-bregmatic diameter was the best, so that face presentation would have been as easy as vertex, especially when it is observed the biparietal and bizygomatic are the same.

Experiment 14.

In this case it was found, after removing the greater part of the calvareum, that the—

Occipito-frontal, or its representative, the fronto-cervical, was	$2\frac{6}{8}$ inches.
Mento-bregmatic, or its representative, mento-orbital, was	2 „
Bizygomatic	$2\frac{5}{8}$ „

Experiment 15.

	Occipito-frontal.	Mento-bregmatic.	Biparietal.	Bizygomatic.
Natural size . .	$3\frac{5}{8}$	4	$3\frac{4}{8}$	$3\frac{2}{8}$
After perforation .	$3\frac{5}{8}$	$3\frac{3}{8}$	$3\frac{2}{8}$	—

In this case it will be noticed that the fronto-occipital was not sensibly altered by perforation, while the mento-bregmatic was considerably reduced, as also the biparietal.

Dr. Greenhalgh considered that the author had done great service to the Society and profession at large by bringing before them this important subject in such a scientific and practical manner. He drew attention to the extreme difficulty and danger attending these cases where extreme deformity of the pelvis existed, at the same time remarking that there was a wide difference between dragging a mutilated head through a dry pelvis and that through the living maternal structures, which were too frequently much irritated, inflamed, and œdematous, before the consultation was sought. He laid stress upon the facts that between extraction and safe extraction was also a marked difference. He then remarked that perforation, when the head was movable and above the brim of the pelvis, was, from the inability of the obstetrician to fix the presenting parts, every now and then attended with great difficulty and hazard; in illustration he detailed a case he attended with two practitioners, in which, although attempts at perforation were made both before and after turning, yet so great was the pressure of the perforator before it entered the cranium that a transverse rent was made in

the anterior wall of the vagina. He had resolved, should a similar case again present itself, to use Braun's cephalotribe, having witnessed a similar case in Vienna last August, in which its advantages were most marked. Dr. Greenhalgh concluded by detailing a case in which the whole cranial vault had been removed by two practitioners, in which he had effected the delivery by fixing three crotchets in various positions on the outer surface of the presenting part.

INDEX.

PAGE

Abstract of the receipts and expenditure for the five years, 1859—63 . 12
Adams (Mr. Wm.) *Remarks* on Dr. Barnes's paper on spondylolisthesis 96
Address of the President, Henry Oldham, M.D., January 6th, 1864 . 14
Adenoma of the ovary 183
Adhesions dragging down the fundus uteri (Dr. Day) . . 10
Annual General Meeting, January 6th, 1864 . . . 10
Arms and hands, deformity of (Dr. Shortt) . . . 205
Aveling (Dr. J. H.) on immediate transfusion . . . 126
—— *Discussion* on ditto 134

Bandage after labour (Dr. Meadows) 125
Barnes (Dr.) on spondylolisthesis; case of pelvic contraction from this affection; premature labour induced . . 78
—— *Discussion* on ditto 96
—— Appendix to ditto 98
—— Small fibroid tumour expelled spontaneously from the uterus . 101
—— Piliferous cyst of the ovary 249
—— *Remarks* on Prof. Braun's instruments for cephalotripsy . 77
—— —— on Dr. Greenhalgh's case of amputation of the cervix uteri 102
—— —— on Dr. Greenhalgh's paper on placenta prævia . 188
—— —— on Dr. W. Williams's paper on missed labour. . 212
—— —— on Dr. Wade's paper on puerperal embolism . . 262
Beatty (Dr.) of Dublin, *Remarks* on Dr. Greenhalgh's paper on placenta prævia 194
Beck (Dr. Snow) healthy uterus from a case of puerperal fever . 186
Binder, obstetric (Dr. Eastlake) 205
Braun's (Prof.) instruments for cephalotripsy . . . 75
Brodhurst (Mr.) *Remarks* on Dr. Barnes's paper on spondylolisthesis 97
Brown (Mr. Baker) on fibrous tumours of the uterus, treated by surgical means 21
—— *Discussion* on ditto 32

PAGE

Brown (Mr. Baker) case of complete extirpation of the uterus and ovaries, with large fibrous tumours . . . 249
—— *Remarks* on Mr. T. Bryant's cases of ovariotomy . . 62
—— —— on the removal of the cervix uteri . . . 75
Bryant (Mr. T. E.) case of Cæsarean section . . . 197
—— *Discussion* on ditto 203
Bryant (Mr. Thomas) on some cases of ovariotomy, with remarks . 35
—— *Discussion* on ditto 60

Cæsarean section, case of (Mr. T. E. Bryant) . . . 197
Cauliflower excrescence of the uterus (Dr. Fussell) . . 102
Cephalotribe, description of Prof. Pajot's (Dr. Gr. Hewitt) . 78
Cephalotripsy, as performed at Vienna by Prof. Braun (Dr. Ritchie) 75
Cervix uteri, hypertrophied, removed by wire-rope écraseur (Dr. Greenhalgh) 75, 102
—— fibrous tumour of (Dr. Murray). 184
Cleveland (Dr.) *Remarks* on Dr. Aveling's paper on immediate transfusion 134
Cold, extreme, its application as an anodyne in pain in parturition (Dr. J. M. Granville) 105
Craniotomy forceps (Dr. Hall Davis) 123

Davis (Dr. Hall) craniotomy forceps 123
—— *Remarks* on Dr. Greenhalgh's paper on placenta prævia . 190
Day (Dr. E. E.) extra-uterine fœtation, followed by intra-uterine pregnancy, induction of premature labour . . . 3
—— adhesions between uterus and rectum dragging down the fundus uteri 10
Deformity of arms and hands (Dr. Shortt) . . . 205

Eastlake (Dr.) obstetric binder 205
—— on the management of the third stage of labour . . 226
—— *Discussion* on ditto 246
—— *Remarks* on Dr. Aveling's paper on immediate transfusion . 135
Election of New Fellows . 1, 21, 65, 75, 101, 123, 181, 197, 221, 249
—— *of Honorary Fellows* 249
Embolism, puerperal (Dr. Wade) 255
Encephalocele (Hydro-) case of (Dr. A. Harris) . . 115
Extirpation of uterus and ovaries, with large fibrous tumours (Mr. B. Brown) 249

Fibrous tumour of cervix uteri (Dr. Murray) . . . 184
—— tumours of the uterus treated by surgical means (Mr. B. Brown) 21

PAGE
Fistula, vesico-vaginal, new mode of treating (Dr. A. Meadows) . 107
Fœtation, extra-uterine, followed by intra-uterine pregnancy, induction of premature labour (Dr. Day) 3
Fœtus, on the best mode of delivering, after perforation (Dr. B. Hicks) 263
Fussell (Dr. E. F.) case of cauliflower excrescence of the uterus . 102
—— *Discussion* on ditto 104

Gant (Mr. F. J.) post-mortem examination of a woman in first stage of labour; death by accidental hæmorrhage . . 214
Gayton (Mr.) forceps with a spring racket . . . 249
Gervis (Dr.) distension of ureters, pelvis of kidney, &c., in an infant 221
—— *Remarks* on Mr. B. Brown's paper on fibrous tumours of the uterus 32
—— —— on Dr. Greenhalgh's paper on placenta prævia . 195
Granville (Dr. J. M.) on the application of extreme cold as an anodyne in pain in parturition 105
Greenhalgh (Dr.) hypertrophy of cervix uteri removed by wire-rope écraseur 75, 102
—— on the treatment of placenta prævia, with illustrative cases (and statistical tables) 140
—— *Discussion* on ditto 188
—— pelvimeter, invented by Dr. Harris in 1859 . . . 186
—— *Remarks* on Mr. B. Brown's paper on fibrous tumours of the uterus 33
—— —— on Mr. Bryant's case of Cæsarean section . . 203
—— —— on the defining the period of "missed labour" . . 212
—— —— on Dr. Eastlake's paper on the third stage of labour . 216
—— —— on Dr. Wade's paper on puerperal embolism . . 262
—— —— on Dr. Hicks' paper on delivery of the fœtal head after perforation 303
—— and Dr. Braxton Hicks, *Report* on Mr. Harper's ovarian tumour [adenoma of the ovary] 181
"Guide-hook," a new obstetric instrument, description of (Mr. S. Newham) 7

Hæmorrhage, fatal umbilical, in an infant (Dr. G. Hewitt) . 65
Hands and arms, deformity of (Dr. Shortt) . . . 205
Harper (Mr.) ovarian tumour, removed by Mr. Baker Brown . 181
—— *Report* on ditto, by Dr. Greenhalgh and Dr. Braxton Hicks . 181
Harris (Dr. A.) case of hydro-encephalocele . . . 115
Hewitt (Dr. Graily) fatal umbilical hæmorrhage in an infant . 65
—— description of Pajot's cephalotribe . . . 78

PAGE

Hewitt (Dr. Graily) apparatus for the performance of transfusion . 136
—— Dr. M. Sims' modification of Chassaignac's écraseur . . 254
—— *Remarks* on Dr. T. Smith's cases of ovariotomy . . 73
—— —— on Dr. Aveling's paper on immediate transfusion . 134
—— —— on Dr. Greenhalgh's paper on placenta prævia . . 192
—— —— on Dr. Gervis's case of distension of ureters, &c., in an infant 222
—— —— on Dr. Eastlake's paper on the third stage of labour . 248
Hicks (Dr. Braxton) anencephalous monstrosity . . 226
—— inquiry into the best mode of delivering the fœtal head after perforation 263
—— —— summary of the statements and opinions of authors on the subject, and on the controversy between Drs. Hamilton, Hall, Osborn, &c. 264-73
—— *Remarks* on Dr. Day's case of extra- and intra-uterine pregnancy 6
—— —— on Dr. T. Smith's cases of ovariotomy . . 73
—— —— on the wire-rope écraseur for removal of cervix uteri . 75
—— —— on the causes of failure with the wire-rope écraseur . 104
—— —— on Dr. Aveling's paper on immediate transfusion . 135
—— —— on Dr. Greenhalgh's paper on placenta prævia . . 191
—— —— on defining the period of "missed labour" . . 212
—— see *Greenhalgh* (Report).
Hip-joint, destructive inflammation of, in a puerperal woman (Mr. Nunn) 116
Hydro-encephalocele, case of (Dr. A. Harris) 115

Inflammation, destructive, of the hip-joint, in a puerperal woman (Mr. Nunn) 116
Injections, vaginal, simple instrument for (Dr. Rasch) . . 224

Jay (Mr. F. F.) double monstrosity 222

Kidney, pelvis of, &c., distension, in an infant (Dr. Gervis) . 221
Kilian's account of spondylolisthesis, notices of his cases . . 79

Labour, induction of premature, in case of extra- and intra-uterine pregnancy (Dr. Day) 3
—— —— in case of spondylolisthesis (Dr. Barnes) . . 78
—— post-mortem examination of a woman in first stage of natural (Mr. Gant) 214
—— management of the third stage of (Dr. Eastlake) . . 226
—— application of cold as an anodyne in pain in (Dr. J. M. Granville) 105
—— missed (Dr. Wynn Williams) 208

PAGE

List of Officers elected for 1864 11
—— ——*for* 1865 v
—— *of Honorary Fellows* ix
—— *of Ordinary Fellows* xi
—— *of Deceased Fellows*, 1863 20
—— *of Referees of Papers* vii
—— *of Honorary Local Secretaries* viii

Madge (Dr. H. M.) case of lesion (rupture?) of the placenta . 1
Martyn (Dr.) *Remarks* on Mr. Nunn's case of hip-joint inflammation 120
Meadows (Dr. Alfred) on a new mode of treating cases of vesico-vaginal fistula 107
—— bandage after labour 125
Meeting, Annual General, January 6th, 1864 . . . 10
Missed labour (Dr. Wynn Williams) 208
Monstrosity, double (Mr. Jay) 222
—— anencephalous (Dr. B. Hicks) 226
Murray (Dr. Gustavus) fibrous tumour of the cervix uteri . 184

Newham (Mr. Samuel) description of the "guide-hook," a new obstetric instrument 7
Nunn (T. W.) case of destructive inflammation of the hip-joint in a puerperal woman 116
—— *Discussion* on ditto 120

Obstetric binder (Dr. Eastlake) 205
Officers and Council, see *List*.
Oldham (Dr.) address as President of the Society, 1864 . . 14
—— ovarian tumour 75
—— *Remarks* on Dr. Meadows's paper on vesico-vaginal fistula . 115
—— —— on Dr. Greenhalgh's paper on placenta prævia . 195
—— —— on the defining the period of "missed labour" . 212
Ovarian tumour removed by Mr. Baker Brown (Mr. Harper) . 181
—— *Report* on ditto [adenoma of the ovary] by Dr. Greenhalgh and Dr. Braxton Hicks 181
Ovaries and uterus with large fibrous tumours, complete extirpation of (Mr. B. Brown) 249
Ovariotomy, cases of (Mr. T. Bryant) 35
—— Remarks on treatment, and the operation . . . 54
—— eight additional cases of (Dr. Tyler Smith). . . 66
Ovum of seven months expelled entire (Dr. Whitmarsh) . . 105
Pajot's (Prof.) cephalotribe 78
Palfrey (Dr.) *Remarks* on Dr. Eastlake's paper on the third stage of labour 246

PAGE

Parturition, see *Labour*.
Pelvimeter, invented by Dr. Harris in 1859 186
Pelvis, contraction of, from spondylolisthesis (Dr. Barnes) . . 78
—— summary of the controversy of writers on the conjugate diameter of, allowing of the head of the fœtus being drawn through its brim (Dr. B. Hicks) 264-73
Perforation, on the best mode of delivering the fœtal head after (Dr. B. Hicks) 263
—— summary of the opinions and controversy of writers on ditto 264-73
Placenta, case of lesion (rupture ?) of (Dr. Madge) . . . 1
Placenta prævia, treatment of, with cases [and statistical tables] (Dr. Greenhalgh) 140
Playfair (Dr.) *Remarks* on Mr. Bryant's case of Cæsarean section . 204
Post-mortem examination of a woman in first stage of natural labour (Mr. Gant) 214
Pregnancy, extra-uterine, followed by intra-uterine; induction of premature labour (Dr. Day) 3
Puerperal embolism (Dr. Wade) 255
Puerperal fever, healthy uterus from a case of (Dr. Snow Beck) . 186
Puerperal state, *Remarks* on the professional question as to proper length of attendance on the 18

Rasch (Dr. Adolph) simple instrument for vaginal injections . 224
Report of the Auditors for 1863 10
Ritchie (Dr. C. G.) on the operation of cephalotripsy as performed at Vienna by Professor Braun 75
Routh (Dr.) *Remarks* on Mr. B. Brown's paper on fibrous tumours of the uterus 32
—— —— on comparative values of the wire-rope and chain écraseur 104
Rupture of the placenta (Dr. Madge) 1

Shortt (Dr. J.) description of a deformity of arms and hands . 205
Sims (Dr. Marion) *Remarks* on incision of the os uteri . . 185
Smith (Dr. Tyler) eight additional cases of ovariotomy . . 66
—— *Discussion* on ditto 72
Spondylolisthesis (on), pelvic contraction from this affection, premature labour induced (Dr. Barnes) . . . 78
—— appendix to ditto (Dr. Barnes) 98
—— nature and modes of origin of 86
—— obstetric relations of 92

Transfusion, on immediate (Dr. Aveling) . . . 126
—— apparatus for the performance of (Dr. G. Hewitt) . . . 136

PAGE
Tumour, fibroid, expelled spontaneously from the uterus (Dr. Barnes) 101
—— fibrous, of the cervix uteri (Dr. Murray) . . . 184
—— —— of the uterus, treated by surgical means (Mr. B. Brown). 21
—— —— extirpation of uterus and ovaries (Mr. B. Brown) . 249

Umbilical hæmorrhage, fatal, in an infant (Dr. G. Hewitt) . 65
Ureters, &c., distension of, in an infant (Dr. Gervis) . . 221
Uterus, case of cauliflower excrescence of (Dr. Fussell) . . 102
—— fibrous tumours of, treated by surgical means (Mr. B. Brown) . 21
—— and ovaries, with large fibrous tumours, complete extirpation of (Mr. B. Brown) 249
—— see *Cervix Uteri.*

Vaginal injections, simple instrument for (Dr. Rasch) . . 224
Vaginal, vesico-, fistula, new mode of treating (Dr. A. Meadows) . 167

Wade (Dr. W. F.) on puerperal embolism . . . 255
—— *Discussion* on ditto 262
Wells (Mr. Spencer) *Remarks* on Mr. T. Bryant's case of ovariotomy 60
—— —— on Dr. T. Smith's cases of ovariotomy . . 72
Whitmarsh (Dr.) ovum of seven months expelled entire . . 105
Williams (Dr. Wynn) missed labour . . . 208
—— *Discussion* on ditto 212
Woodman (Dr.) *Remarks* on Dr. Greenhalgh's paper on placenta prævia 195

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